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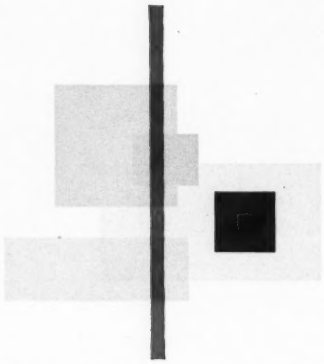

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A NEW NASAL ANESTHESIA MASK

*Specially Designed for Oral Surgical Procedures**

ARTHUR H. BULBULIAN, D.D.S., R. QUENTIN ROYER, D.D.S., and
CHARLES J. RESTALL, M.D., Rochester, Minnesota

DIGEST

Administration of anesthetic gases via the nasal route for patients undergoing oral surgical procedures, by a method other than intratracheal intubation, has met with some technical difficulties in the past. One of the main reasons for this has been the lack of an efficient and comfortable device to establish a positive connection between the supply of the anesthetic gases and the nasal passages, without interfering with the surgeon's task while operating in the oral cavity. This article describes a mask which has been devised for this purpose and explains in detail the manner of its use.

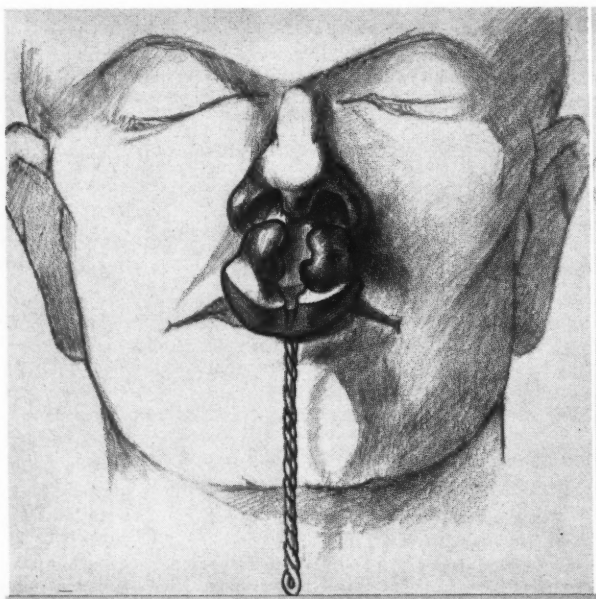
Unhampered Access Difficult

Older style nasal masks which merely fitted over the nose were bulky and prone to be easily dislodged during oral surgical manipulations. Such masks also required application of a considerable amount of external pressure in order to produce and maintain the seal necessary to prevent admixture of ambient air with anesthetic gases. Moreover, such conventional nasal masks usually required the assistance of additional personnel in the operating room.

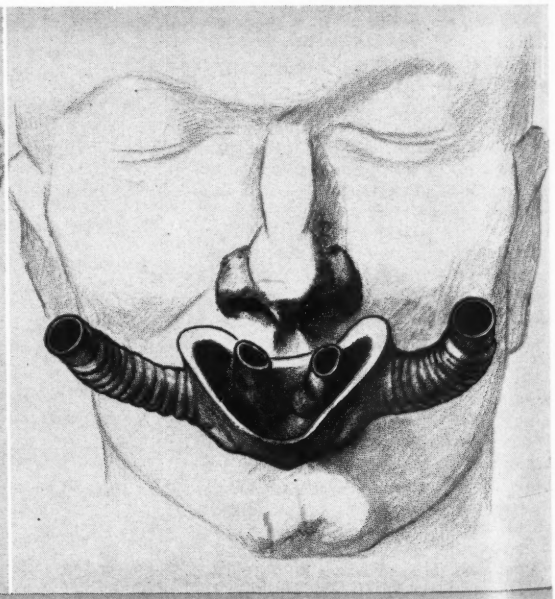
Under these conditions free and unhampered access to the oral cavity became difficult, in particular when the surgical procedure involved the anterior portion of the maxillary alveolus, where superior and anterior traction of the upper lip is essential.

Objectionable Features in Substitute Implements—The use of a pair of curved tubes entering the nostrils from various directions has been tried but this method too has presented various objectionable features:

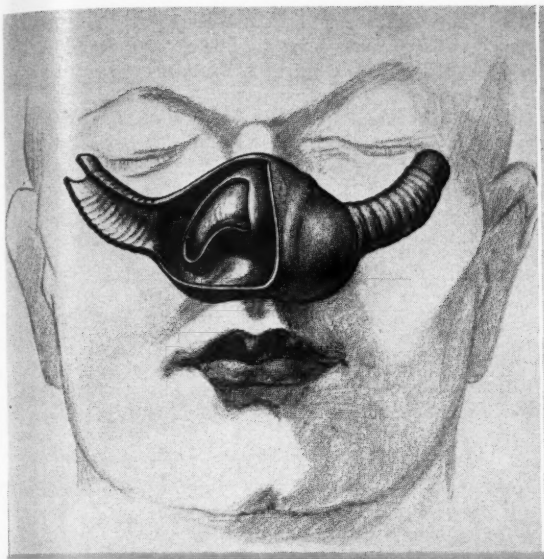
*From the *Mayo Clinic*.

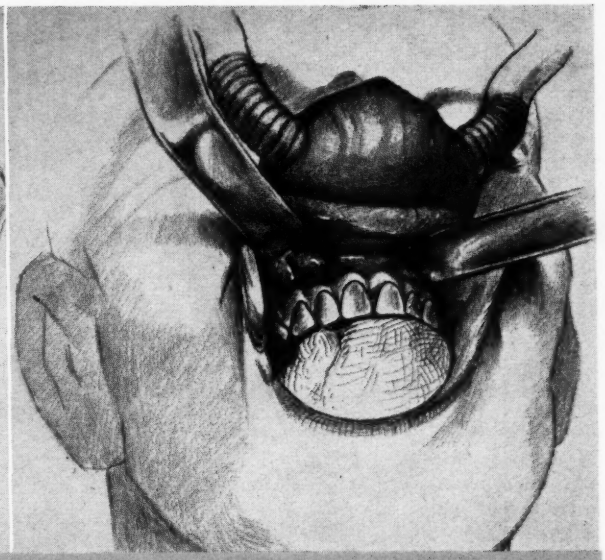


1.
Method used in obtaining an accurate cast of paired nasal vestibules in one operation. Use of two-pronged fork aided in withdrawal of hardened impression material and also kept relative position of cast of vestibules unchanged.



2.
Inner aspect of mask shows positions of tubular vestibular plugs, which are integral parts of mask. Note that relationship of these tubes has been kept exactly as it was in original cast shown in Figure 1.





3.
Partial cut-away view of mask in position. Note manner in which outer ends of vestibular plugs flare out and become continuous with inner layer of mask, which drapes itself over anterior portion of nose and then folds on itself to become continuous with outer layer of mask. Space formed between these two layers merges into lumens of bilateral tubes that supply anesthetic gas or gases.

4.
Position of mask during operation in oral cavity. Note degree of traction on upper lip that can be accomplished without disturbing functional fit of mask.

(1) When the intranasal ends of such paired nasal tubes were not sufficiently long, they could not be relied upon to stay in place during the surgical procedure.

(2) When the proximal ends of these tubes extended farther into the nasal fossa, somewhat in the form of nasal catheters, they could not be tolerated by the patient during the preinduction period.

(3) Correct orientation and adequate retention of such paired tubes posed an additional serious problem.

Combination Anesthetic Agent Desirable—At times, as a result of these difficulties, when administering anesthesia to oral surgical patients it has been necessary to rely solely upon an intravenous anesthetic agent when first choice might have been a combination of intravenous anesthetic agents with inhalation agents.

Essential Prerequisites

The objective was to design a masklike nasal device embodying a set of features that would help overcome most of the difficulties mentioned. To accomplish this the following features seemed essential:

(1) It should lend itself to quick application to the patient's nose with minimal manipulation and discomfort.

(2) Be self-fitting, almost self-retaining, and not dependent on excessive external pressure to produce a proper seal.

(3) It should possess a minimum of peripheral facial contacting surface, particularly along the region of the upper lip.

(4) It should be resistant to dislodgment during surgical procedures in the oral cavity.

(5) Provide adequate passageway for the free flow of gases.

The Basic Principle of Design

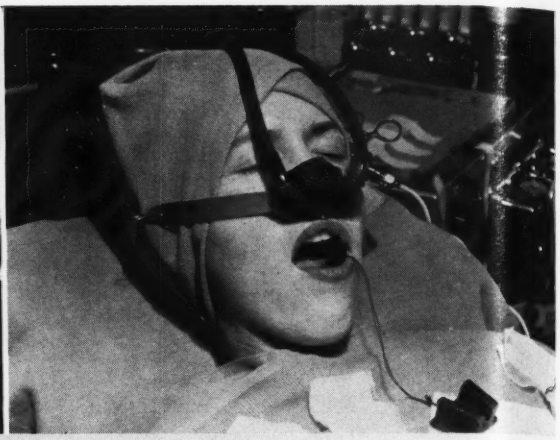
Advantages — The final design achieved of such a masklike structure embodies the five prerequisites listed. Extensive clinical tests over a period of 2 years have shown it to be comfortable, efficient, and effective. It allows an inhalation agent such as nitrous oxide to be effective even during the induction stages of anesthesia. Apnea produced by intravenous administration of barbiturates frequently denies adequate utilization of an inhalation agent during this period.

Utilization of Anatomic Contour—The crucial feature of this nasal mask results from full utilization of the characteristic anatomic contour of the pair of recesses at the anterior portion of the nasal passages, the nasal vestibules. These vestibules, by virtue of their peculiar contour, were found to provide a convenient and effective means of establishing a positive connection between the nasal passages and the supply of anesthetic gases.

Importance of Nasal Vestibules—Efficient functioning, effective seal, adequate retention, and comfort of the device depend primarily on the correct fit of a pair of tubular plugs that have been shaped to reproduce as nearly as possible the contour and relationship of the normal nasal vestibules.

Contour of Nasal Vestibules—In order to visualize the contour of the nasal vestibules accurately it was necessary to take an impression, which may be called a cast. Figure 1 shows the method used. The impression material was inserted into the nasal vestibules by means of a two-pronged fork. This

5.
Operating room setup showing venipuncture needle and mask in position.



6.
Close-up view of patient's head showing intraoral mouth prop in position.

device enabled the withdrawal of the cast without loss of positional relationship of the two vestibules.

Each Vestibule a Centrally Expanded Recess: The cast demonstrates that each vestibule is a centrally expended recess roughly ovoid in cross section. At the distal (outer) portion of each vestibular cast there is a prominent circumferential constriction, representing primarily the curved lower margin of the lateral nasal cartilages. More proximally, a second partial indentation is seen along the superior lateral surface of the cast. This represents the ridge known as the limen nasi.

Minor Extensions of Nasal Vestibules: In addition, the cast also has a pair of curved, medially oriented projections pointing toward the tip of the nose, representing the minor extensions of the nasal vestibules into this region. These extensions, known as the ventricles or recesses of the apex, are opposed to each other at their medial aspect and are separated by only a narrow space.

Labial Aspects Widely Separated: In contrast, the labial aspects of the vestibules are widely separated on account of the presence of the base of the nasal septum and the base of the columella at this region.

Utilization of Vestibules as an Integral Part of Mask—The characteristic features of the nasal vestibules just described were utilized in designing the mask, in the following manner:

1. On the inner aspect of the mask was incorporated a pair of tubular open-end plugs which duplicated the contour of the nasal vestibules (Fig. 2).

2. A method of retaining these tubular plugs in proper relationship to each other in the vestibules was made possible by the unique design of the mask, which is made up of two layers instead of the usual one. The inner layer of the mask, which integrates with the outer ends of the vestibular tubes, drapes itself snugly over the lower half of the nose and thus serves primarily as a retaining device for the vestibular plugs (Fig. 3).

3. The inner layer folds over itself and becomes the outer layer. Ample separation of the outer layer from the inner layer permits free passage of gases.

4. The space between the two layers becomes continuous distally with the lumens of a pair of symmetrically located inlet tubes, which are directed superiorly and follow the contour of the face.

Advantages Gained—The arrangement of the components in the manner described provides the following advantages as shown in Figure 4:

1. The snugly fitting vestibular plugs can be held in correct position and securely retained because they are continuous with the inner portion of the mask, which is anchored to the lower half of the nose.

2. The conformity of the vestibular plugs to the contour of the nasal vestibules provides a comfortable and effective primary seal.

3. Since the peripheral margins of the mask in contact with the face do not necessarily function as areas of seal, it becomes feasible to make these regions as narrow as desired; thus the lower portion of the mask in contact with the upper lip is extremely narrow, resulting in free mobility of the upper lip.

4. The anchorage of the mask in the nasal vestibules combined with its fit over the external surface of the lower part of the nose makes it almost a self-retaining device eliminating the need for excessive external pressure or elaborate straps to hold it in place.

5. The symmetrically placed supply tubes, which communicate with the passageway between the inner and outer layers, help to stabilize and retain the mask in position.

Material Used

While a mask based upon the above-described design functions satisfactorily even when constructed of a rigid material such as metal or rigid plastic, experimental models were made from prevulcanized latex of proper degree of resilience. The use of a flexible ma-

terial eliminates the necessity of having many sizes. Two sizes, a small and a large, have been sufficient to accommodate most patients encountered.

Applications in Oral Surgery

The mask can be used in uncomplicated oral surgical procedures such as (1) extraction of a few teeth, (2) removal of one or several impacted teeth, (3) incision and drainage of abscesses, or (4) taking a specimen for biopsy.

Procedure Followed—1. A vein of the forearm is punctured with a 20-gauge intravenous needle (Fig. 5). The needle is connected to a glass observation tube or to disposable inner tubing which leads to a 20-cubic centimeter Luerlok syringe via a long rubber tube. The syringe is fastened to the head rest where it can be manipulated by the anesthesiologist who supports the head.

2. A test dose of an intravenous anesthetic agent is injected.

3. An intraoral mouth prop is inserted between the upper and lower jaws (Fig. 6).

4. Gases consisting of nitrous oxide and oxygen are induced to flow into the nasal passages at a high flow rate such as 9.0 liters of nitrous oxide and 3.0 liters of oxygen per minute.

5. The proportion in which the two gases usually are administered is 75 per cent nitrous oxide and 25 per cent oxygen. The proportion of 50 per cent nitrous oxide and 50 per cent oxygen is used for patients requiring greater oxygenation.

Additional Dose Administered — Just as the patient is beginning to experience analgesia and before the stage of excitement, an additional dose of the intravenous anesthetic agent is injected. A barricade is formed between the operating field and the throat by placing the lower end of a cotton-filled sponge in the crevice between the tongue and the mandible; the upper end of the sponge is placed against the palate. This aids in preventing respiration of room air through the mouth and increases the efficiency of the anesthetic gases inspired through the nasal mask.

Aid to Prevent Postoperative Depression—A combination of anesthetic agents, utilizing an efficient flow of gases through the nasal airway, helps to prevent postoperative depression from intravenous agents.

Comment

Although the device described was originally designed for the administration of anesthetic gases for oral surgical procedures, it can find a ready application in the field of inhalation therapy where comfort and ease of retention and effective seal are of importance. For such applications, only minor modifications need be made of the basis design.

Summary

A masklike device has been designed for administering anesthetic gases for oral surgical procedures. The inner layer of the mask fits over the lower half of the nose. Attached to the inner aspect of this layer is a pair of hollow plugs, duplicating the contour of the nasal vestibules, that fit into nostrils. These features produce an effective seal.

Adapted from *Proceedings of the Staff Meetings of the Mayo Clinic* **36**:104-112 (Mar. 1) 1961.

The Dangers of Radiation in Dentistry

B. COHEN, D.D.S., M.S.D., H.D.D., and R. W. STANFORD, M.A., F.Inst.P.

An Overall Appraisal of the Problem

X-ray examination has never been accepted by those most closely associated with the development of radiology as a substitute for diagnostic acumen. When x-rays are used to supplant rather than to supplement careful clinical observation, a valuable diagnostic tool is abused. It is stressed that such abuse is not merely wasteful; it is, in addition, dangerous.

Risk to the Patient

The degree of risk to which the patient is exposed is not easily assessed. The chief reason for this is that under good working conditions the gonad dose received by the patient should be extremely small—of the order of fractional milliroentgens. Measurement of such doses requires the use of relatively elaborate and expensive apparatus. This, together with the obvious practical difficulties involved, renders such measurement virtually impossible in all but a few large institutions.

Precautions to Minimize Hazards—The average dentist will have no ready means of checking the efficiency of his arrangements in regard to patient dose, which implies the need for continuous supervision to ensure that instructions are, in fact, being carried out. It has been indicated that especial care should be exercised in x-ray examinations of children and adults of childbearing age. Relatively simple precautions can be instituted without undue difficulty in order to minimize the hazard, and it will be obvious that their stringent implementation is required where such procedures as cephalometric studies or prolonged root treatments entail x-ray examinations.

Risk May be Reduced—In general, there is reason to believe that the risk to which patients are exposed can, when careful techniques and good apparatus are used, be reduced to negligible proportions. Such element of risk as could exist under these conditions would be outweighed by the diagnostic benefit expected to accrue.

Reprinted from British Dental Journal, vol. 107, in *International Dental Journal* **10**:402 (September) 1960.

Permanent Attachment of the

HOT-BEAD STERILIZER TO THE DENTAL UNIT

MANUEL I. WEISMAN, D.D.S., Augusta, Georgia

DIGEST

The hot-bead sterilizer has been demonstrated to be a useful adjunct in the sterilization of small instruments in endodontics. The operation of the hot-bead sterilizer is relatively simple: the small glass beads are electrically heated to a temperature of 500° Fahrenheit.[1] The instrument to be sterilized is then placed in the beads from 5 to 10 seconds. This article describes a method for attaching this adjunct to the dental unit as a permanent part of the unit.

Advantages of the Hot-bead Sterilizer

The sterilizer has been found useful in the following situations:

1. Instruments, such as files, broaches, and reamers, can be sterilized as they are used. The small instruments tend to corrode and rust if autoclaved.

2. Intermittent sterilization of instruments is possible during treatment to provide a sterile instrument at each entrance into the pulp canal. (This is similar to the older method of placing instruments first in phenol and then in alcohol.)

3. Silver cones can easily be sterilized immediately before they are used.

4. Tips of cotton pliers can be sterilized without injury to the metal.

5. The hot-bead sterilizer provides more consistent sterilization than cold sterilization.

Paper and cotton products can become brittle and charred in the hot-bead sterilizer. They can be conveniently autoclaved and stored in small quantities.

Disadvantages of the Hot-bead Sterilizer

1. If the sterilizer beads are spilled, they can burn and seriously injure the operator or the patient.[2]

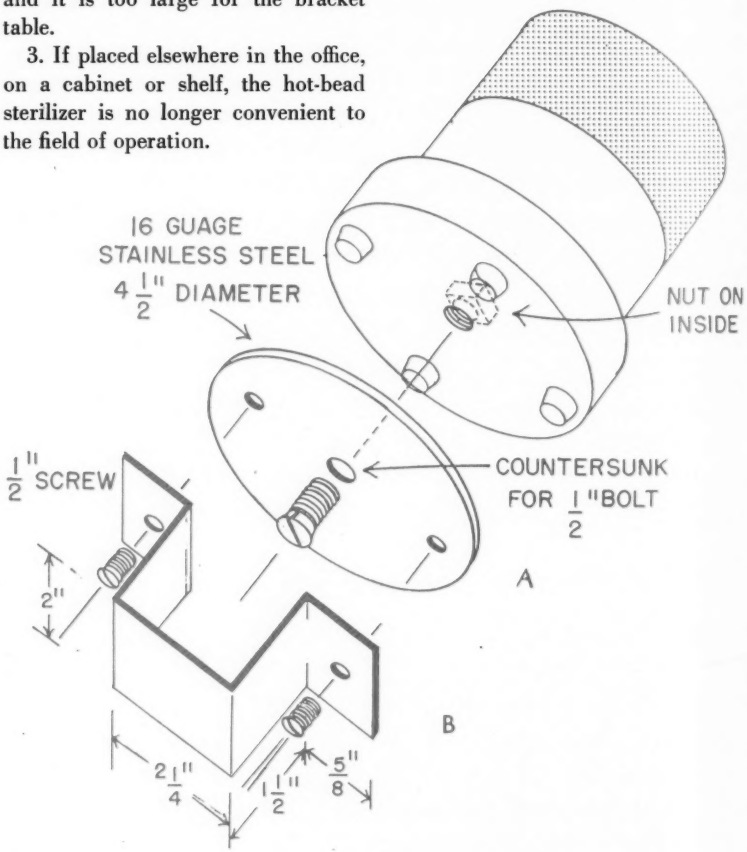
2. The mechanism is too clumsy to be classified as a portable instrument and it is too large for the bracket table.

3. If placed elsewhere in the office, on a cabinet or shelf, the hot-bead sterilizer is no longer convenient to the field of operation.

Disadvantages Corrected

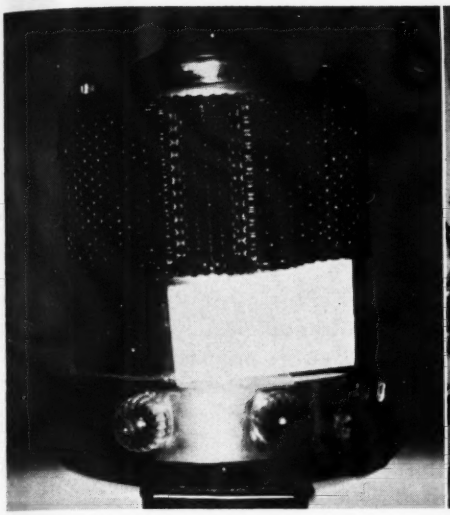
Firmly fix the hot-bead sterilizer to the dental unit near the bracket table in a position out of the patient's contact, yet easily reached by the operator. The installation should be attractive and controlled by the dental unit.

Technique for Securing the Unit—Direct a sheet metal shop to construct from 16-gauge stainless steel a bracket as designed in Figure 1. It consists of two parts: (A) A 4½-inch



1.
Enlarged view of the attachment for the hot-bead sterilizer.

[1]Sommer, R. F.; Ostrander, F. D.; and Crowley, M. D.: Clinical Endodontics, Philadelphia, W. B. Saunders Company, 1956, p. 66.
[2]Ibid, p. 68.



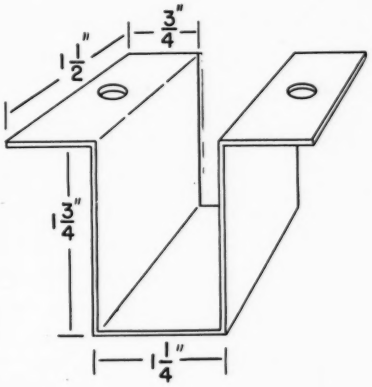
2.
The bracket that fits on the arm of the dental unit.

3.
The position of the hot-bead sterilizer on the dental unit.

disc which is bolted to the fiber base of the sterilizer. The fiber base is easily removed by loosening the two nuts on the bottom. (B) A U-shaped bracket which fits on the arm of the dental unit (Figs. 1 and 2). The sterilizer is fastened about eleven and one-half inches from the attached end of the arm of the dental unit (Fig. 3).

On some units it is necessary to attach the U-shaped bracket 4¼ inches from the attached arm of the dental unit.

Electrical Connection — The 110-volt cord is plugged in to the AC socket in the rear of the dental unit. This socket is controlled by the master switch on the dental unit.



4.
The dimensions for a bracket to be used with older Ritter and other dental units.

Summary and Conclusions

1. A simple and attractive method has been presented to immobilize the hot-bead sterilizer as a part of the dental unit.

2. By this means accidental upsetting of the hot-bead sterilizer and the burning of the patient or operator will be prevented.

3. The hot-bead sterilizer attached in the manner described becomes a safe sterilizer for instruments that previously corroded if autoclaved.

1487½ *Harper Street*

Attenuated Infection

HAROLD J. SIMON, Philadelphia

"The germ theory in contemporary perspective" states that, although disease may occur when microbes invade tissues, or a symbiosis may result, or the invading agent may be completely eradicated, more often than not a state of equilibrium, which benefits both parties, is reached—a state "resulting in attenuated infection" or, as the author alternatively calls it, "peaceful coexistence." As stated, "infection refers to the presence of microorganisms within the tissues, regardless of whether or not this results in detectable pathologic effects." If the host is damaged to the extent that signs and symptoms are present, the condition is infectious disease. Attenuated infection occurs either as the carrier state, as microbial persistence, or as infection.

From Review by Leland W. Parr, Book Reviews, Science **133**:874 (March 24) 1961.

A Technique for Full Impressions

USING HYDRO-CAST*

CECIL E. MATHIS, D.D.S., Topeka, Kansas

DIGEST

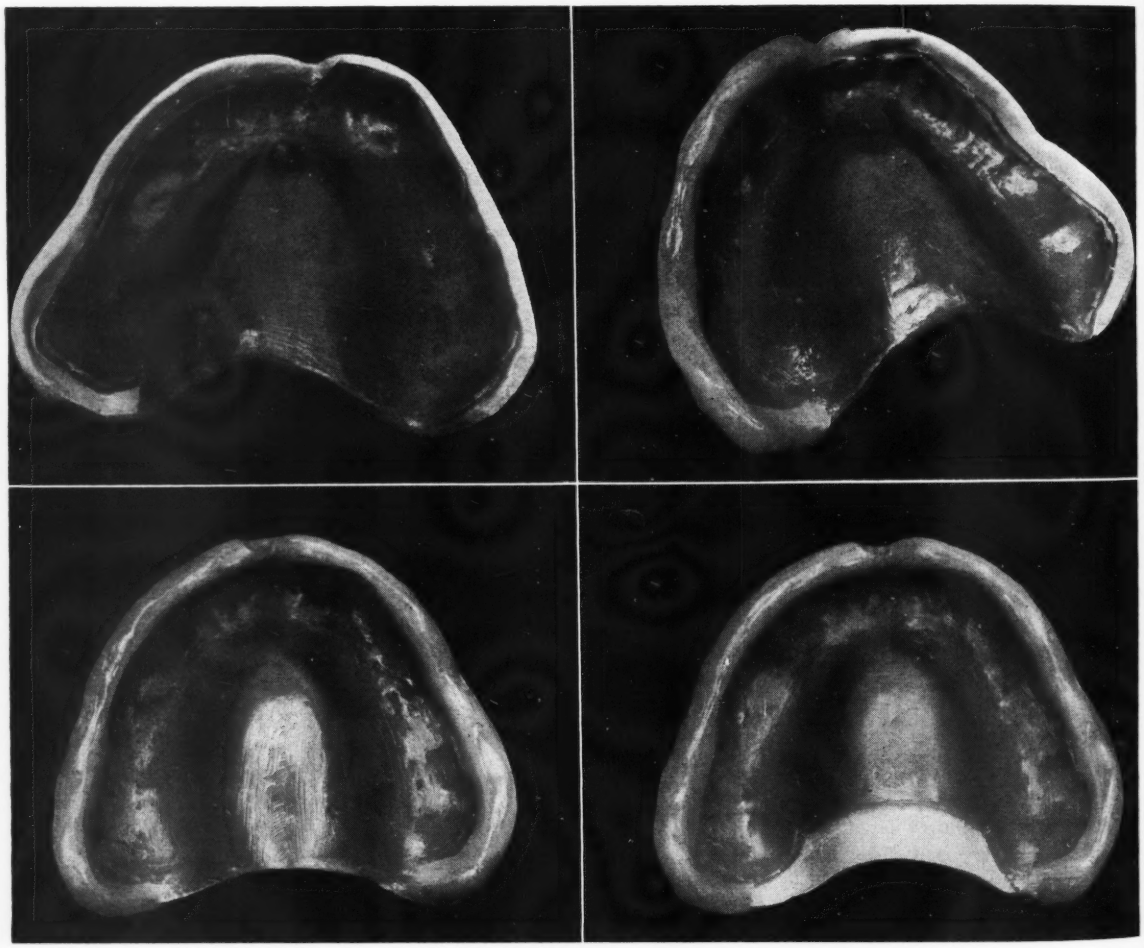
Hydro-cast® was developed with two objectives: (1) To restore oral tissue to a good physiologic condition, and (2) to adapt the appliance to the restored tissue by actual functional impression. During use as treatment for hyperplastic oral tissue for which it was originally designed, the idea of using Hydro-cast as a full impression material was conceived. The technique which was developed and which has proved satisfactory is described in this article.

Technique

To complete the technique the following steps may be taken:

1. A plaster cast is made from a good preliminary impression. The indicated periphery is outlined on the cast. Undercuts are not blocked out.

*From the Veterans Administration Hospital. Hydro-Cast Tissue Treatment and Functional Material, manufactured by Kay See Dental Mfg. Co., Kansas City, Missouri.

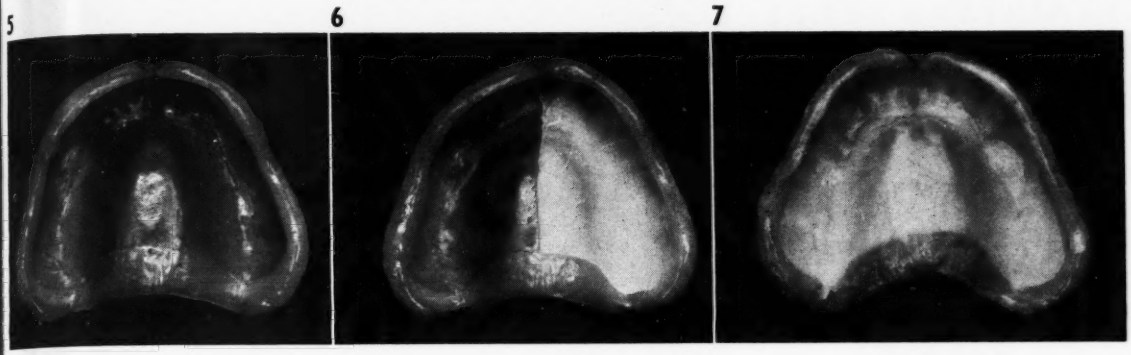


1.
Tray with wax wafer reduced on one side.

2.
Tray muscle trimmed on one side.

3.
Tray completely muscle trimmed.

4.
Tray with wax wafer removed from postdam area.



5.
Tray, with wax wafer, completely muscle trimmed and postdammed.

6.
Muscle-trimmed tray with wax wafer partly removed.

7.
Completed Hyro-cast impression.

If necessary the cast is destroyed in the removal of the finished custom tray.

2. Soak the cast a few minutes in water, then cover the entire outlined area with one thickness of pink baseplate wax. It should be well adapted and of even thickness. Cover the wax wafer and cast with a thin layer of petroleum jelly for easy removal of the wax wafer in a later step; and over this form a tray with one of the quick curing tray plastic materials. The combined thickness of the wax wafer and tray material should be about ⅛ inch. When rigid remove the tray and wafer from the cast. Break the cast if necessary. Reduce the tray material to the wax wafer periphery.

3. Place the tray, lined with wax wafer, in the mouth and check for over-extension. Reduce the labial and buccal periphery about ⅛ inch below the muscle attachments. Reduce the palate to the vibration line or the posterior limit of the postdam area.

4. Reduce the wax wafer on one side from ⅛ inch below the tray. Do not reduce tray material (Fig. 1).

5. Place a roll or half roll (half round) of Surgident® periphery wax over the periphery from the labial frenum to the tuberosity area on one side. Soften the periphery wax with an alcohol torch and temper in hot water. Seat it firmly in the mouth and muscle trim that side (Fig. 2).

6. Reduce the wax wafer and muscle trim the other side in the same manner (Fig. 3).

7. Remove the wax wafer from the posterior palatal area (Fig. 4).

8. Postdam with a full thickness of periphery wax, remove, chill in ice water and examine for over-extension. If necessary the borders can be altered and again muscle trimmed in any particular area (Fig. 5).

9. With a sharp pointed knife cut the wafer into sections and remove from the tray. The earlier petroleum jelly coating permits easy removal (Fig. 6). A good muscle-trimmed and postdammed custom tray has been obtained with a void for the Hydro-cast® impression material.

10. Dry the chilled tray and set aside. Mix the Hydro-cast impression material using 1 part liquid to 2 parts powder. This is a different proportion than that suggested by the manufacturer. Stir well for a few seconds until thoroughly mixed. Pour into the tray at once and spread evenly over the voided area. Immediately insert the filled tray into the mouth and place in position with a steady slightly firm pressure. Hold for one or two minutes and complete the muscle-trimming procedures to remove any excess material from the wax periphery. Hold for a few minutes longer or until the Hydro-cast is of a rubbery consistency. Remove from the mouth and with a sharp knife remove any excess Hydro-cast material from the outside of the tray. Reseat in the mouth and check for retention; if satisfactory remove and allow to bench cure for 10 to 15 minutes. This will produce a well-adapted, muscle-trimmed, true impression with no pressure points except the wax periphery and postdam area (Fig. 7).

11. The same steps are followed for the lower impression.

Summary

A simple nonpressure technique with the following advantages has been presented:

1. Predetermined borders.
2. No patient discomfort.
3. Accurate reproduction of arch and tissue detail.
4. Minimum of postinsertion adjustments.

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STAINLESS STEEL CROWNS *and the Child Patient*— PART THREE

DUANE A. SCHMIDT, D.D.S.,
Fort Dodge, Iowa

DIGEST

This third installment in a series describes the use of the stainless steel crown on the fractured tooth. The author gives explicit directions for selection of the crown to be used, the method used to select the proper size, preparation of the tooth to receive the crown, and for the procedure used to cement the crown in position on the fractured tooth.

Crown Selection for the Fractured Tooth

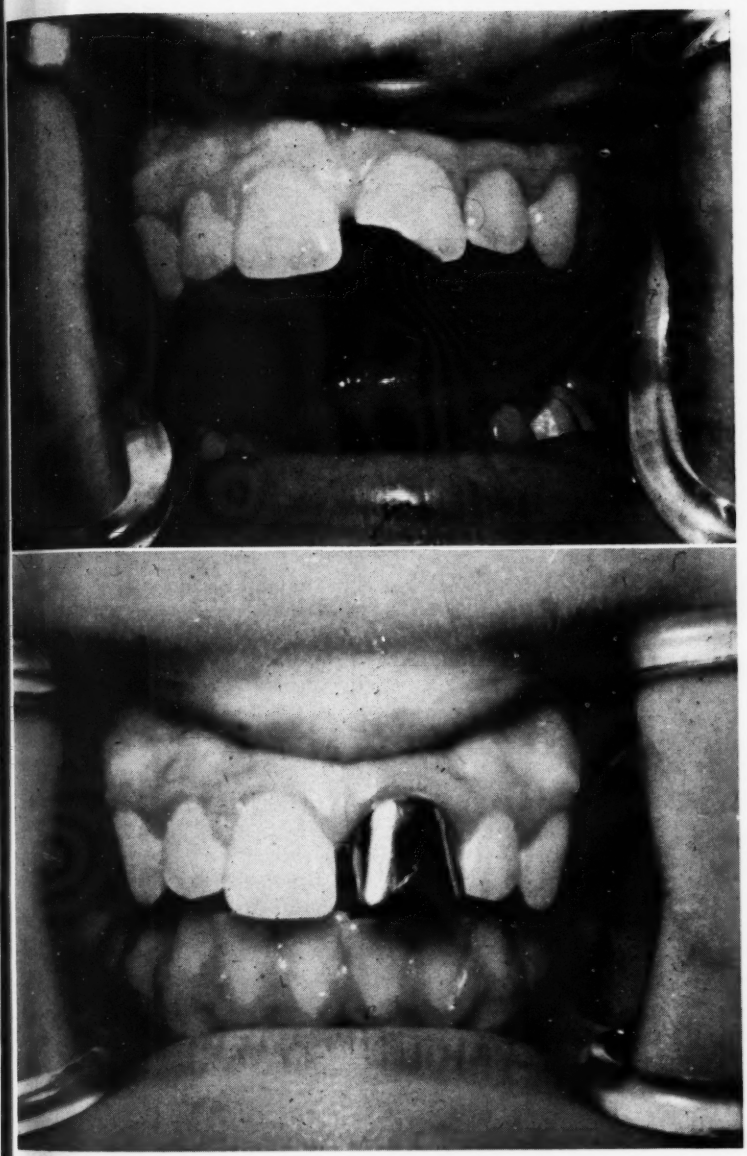
The selection of the stainless steel crown for the fractured anterior tooth

1.
Radiograph taken immediately after the accident revealing extent of fracture.

2. (top, right)
Fractured left central incisor in 8-year-old boy.

3. (center, right)
Incisal view of fractured tooth treated with sub-base medication.

4. (bottom, right)
Stainless steel crown in place holding the medication in position.



5. (top)
Fractured central incisor before treatment.
6.
Fractured central incisor after treatment with sub-base medication and after placement of a stainless steel crown.
7.
Illustrating lingual placement of (a) the orifice to allow escape of air and cement on the stainless steel crown. (Made by ½ round bur.)

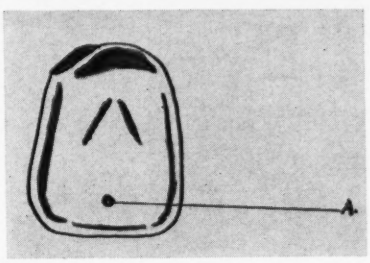


Fig. 7

is more critical than for the posterior primary tooth. The skillful manipulation of stainless steel crowns in this condition represents a high degree of perfection in the technique of crown construction. Skill refined by day-by-day experience is required to treat the fractured anterior tooth.

Anesthetic Usually Required—It is almost always necessary to use anesthesia for successful treatment of a fractured tooth. After the topical anesthetic has been applied and the injection made, the crown is constructed.

Method to Select Size—The tooth to be crowned is sometimes loose. To choose a crown of the proper size use the corresponding tooth as a guide. Its size will closely approximate that of the injured tooth and necessary adjustment for a close fit may be done with less risk of inadvertently extracting the mobile tooth.

Procedural Steps — 1. After the proper crown size has been determined trim and cut with crown scissors so that the gingival margin of the crown falls below the free margin of the gingivae.

2. If the patient is extremely young the portion of the crown extending apically may be lengthened. This is done so that as the tooth continues to erupt the gingival margin of the crown will remain for a longer period of time under the free margin of the gum.

3. Teeth that have had greater loss of tooth structure should likewise have a longer extension of steel toward the apex of the root. This stabilizes the crown to a greater degree and improves the prospect of the crown remaining functional.

4. Contour to shape with appropriate pliers (K-114 and No. 137).

5. After fitting the crown sharpen its gingival edges with a diamond stone from the outside to the inside of the crown. This ensures better fitting and serves to prevent trauma to the attached gingivae.

Tooth Preparation

An incisal tip of enamel sometimes prevents placing the steel crown in position. Trim this portion of tissue with a sandpaper disc to shorten the tooth. At times it will be necessary to make a mesial or distal slice to allow room for crown placement; just as often this procedure is not needed because of diastemas frequently found between young permanent teeth.

Isolate the tooth with cotton rolls, dry, and apply the base or sub-base material of choice.

Cementation

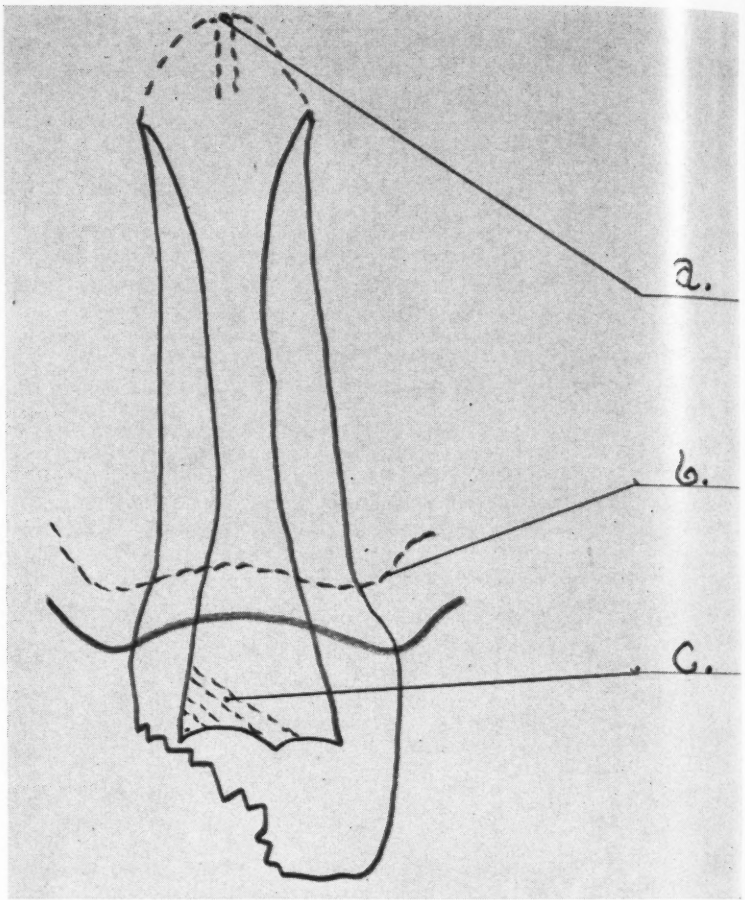
With the base in place, the crown fitted, and buffed on the dental lathe, and the tooth dried and isolated with cotton rolls the crown may be cemented in place.

1. Mix the cement to a slightly softer consistency than for the posterior crown.

2. Roll the cement into the crown so that air bubbles are prevented.

3. On difficult placement or on teeth that are quite mobile it is often impossible to expect the tooth to withstand the forces needed to place the crown in position. In these situations it is advisable to make a small opening on the lingual of the crown with a small cherry bur. This will provide an opening through which the excess cement may flow.

4. A band pusher may be used to seat the crown if caution is exercised in its use. A cotton roll may be placed on the incisal edge of the crown and used as a protective medium for the crown so that the band pusher will not flatten its incisal edge and render it less useful. Care must also be maintained not to interfere with occlusion or create a traumatic occlusion with the tooth's opponents.



8.
Illustrating the main factors for parent consideration: a. maturation of the root end of the tooth; b. recession of the gingival crest; c. deposition of secondary dentin.

Summary

The fractured anterior permanent tooth presents one of the greatest challenges to the dentist's skill. The moment of fracture is the instant of change for the child's entire dental future. Because of the gravity of the incident and the anxieties expressed by the parent it is vital that a careful presentation be properly made. Expert manipulation of the stainless steel crowns is essential for ultimate success.

(End of Part Three)

304 *Carver Building*

An Invitation to Contributors:

Since 1894 when DENTAL DIGEST was founded the pages of this journal have been open to articles contributed by dentists throughout the world. The emphasis has been, and will continue to be, on the publication of articles on all phases of clinical practice.

DENTAL DIGEST encourages the use of many illustrations to show techniques. We prefer that the text be short and that step-by-step technical procedures be presented as an illustrated "clinic on paper."

A booklet, *Suggestions to Authors,* has been prepared by the editorial staff and will be sent free on request.

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* * *

For all illustrated articles that appear in DENTAL DIGEST the author will receive an honorarium of $50 to help defray his expense to preparing the photography or drawings.

Contributors are invited to send their articles to:

Edward J. Ryan, D.D.S.
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INTERCEPTIVE ORTHODONTICS:

A Picture Clinic

DONALD B. SHUMAKER, D.D.S., M.S., Detroit, Michigan

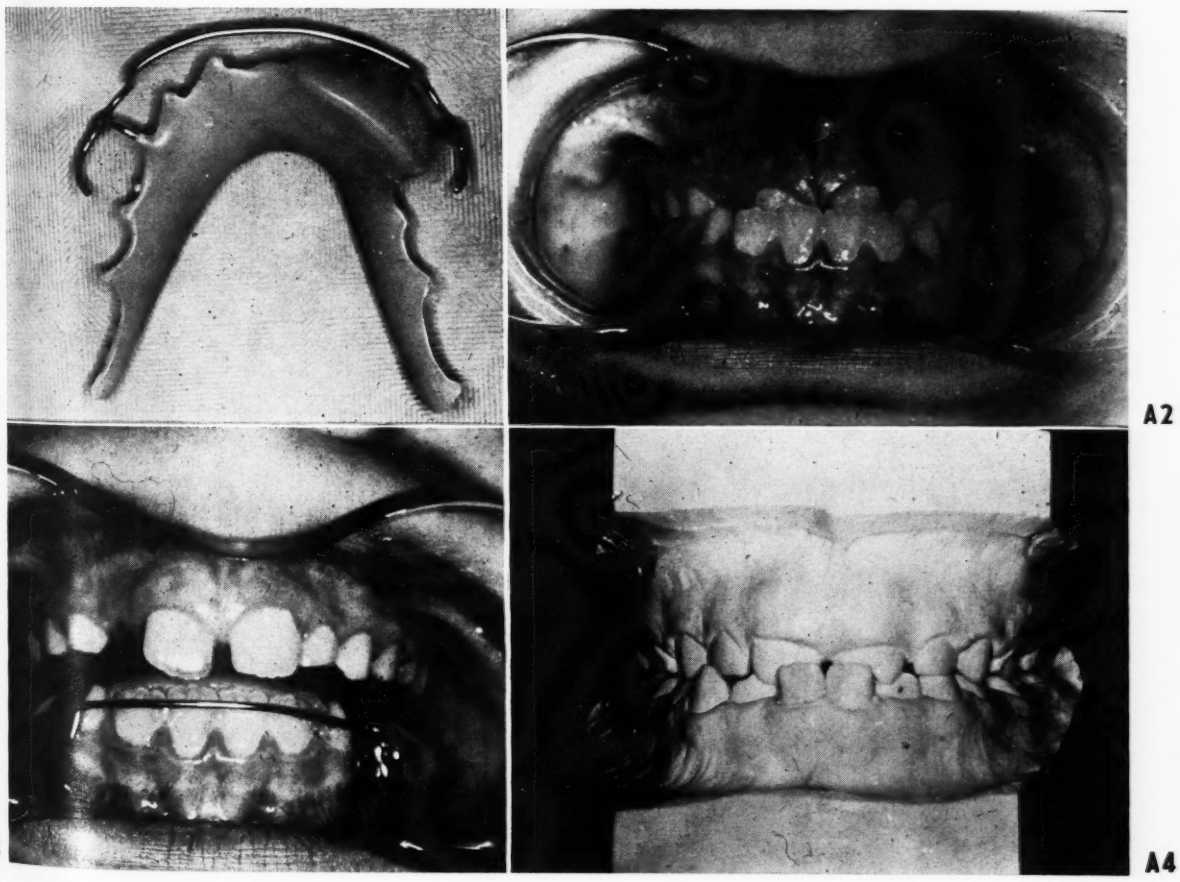
DIGEST

The term interceptive orthodontics refers generally to procedures aimed at eliminating or relieving incipient malocclusions. This type of orthodontic treatment has found a place in general practice as well as in orthodontic practice. The tool called interceptive treatment is frequently used by the orthodontist during the period of supervision. A malocclusion can often be manipulated by interceptive procedures so that with the use of an appliance later the malocclusion will respond more successfully to treatment. Minor anomalies can also be completely corrected with interceptive, relatively uncomplicated procedures.

Examples of Interceptive Treatment

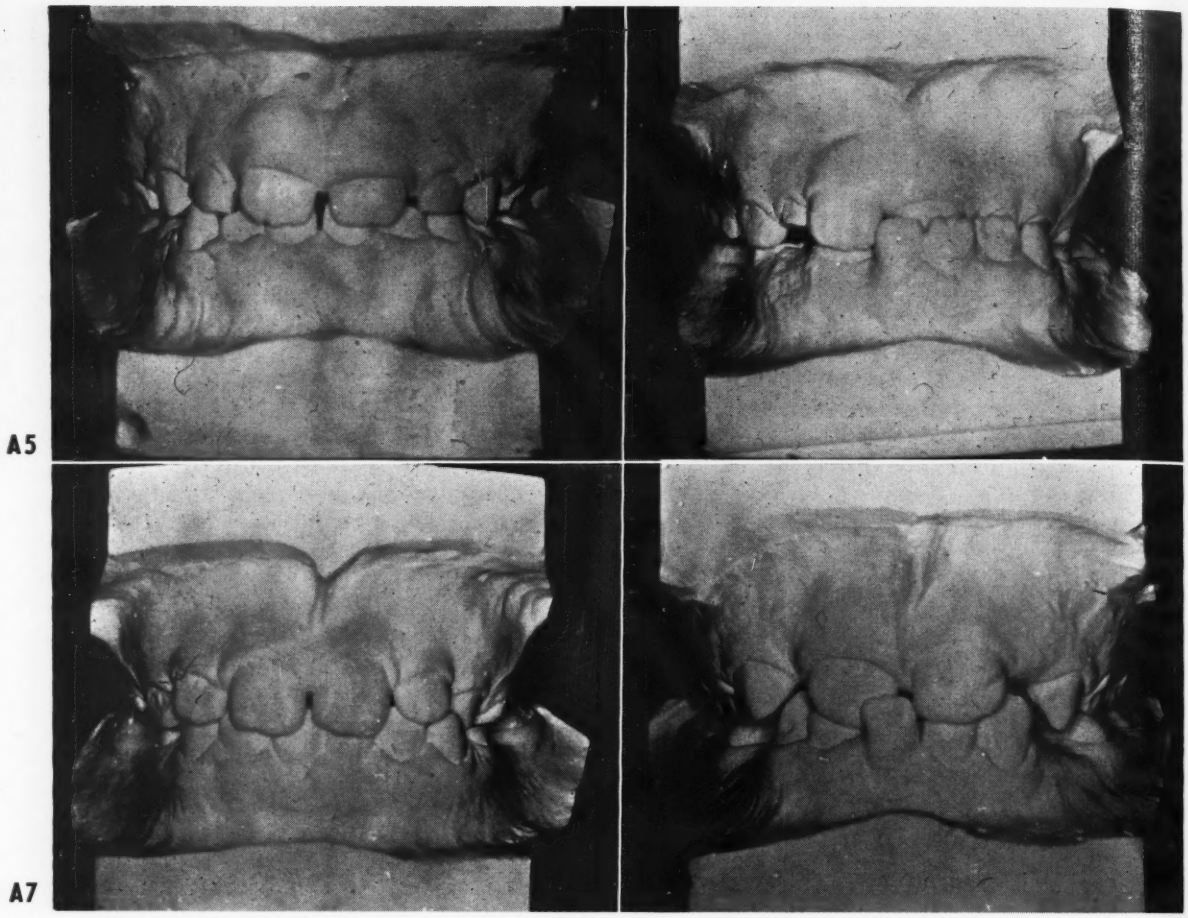
The following are specific examples of some of the procedures used in interceptive orthodontic treatment:

Crossbites—Crossbites of single or several teeth (not of skeletal origin) usually respond to treatment promptly. There are several means by which malposed teeth can be guided into



A2

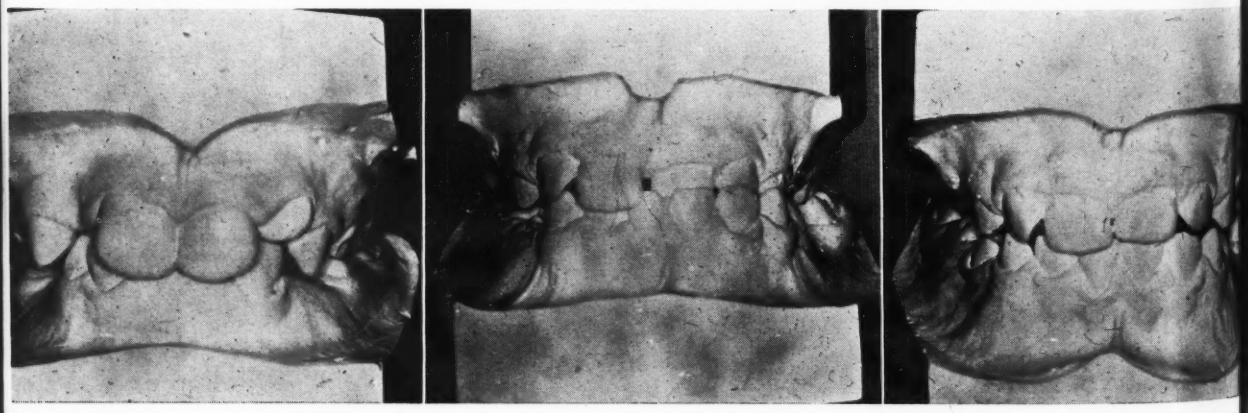
A4

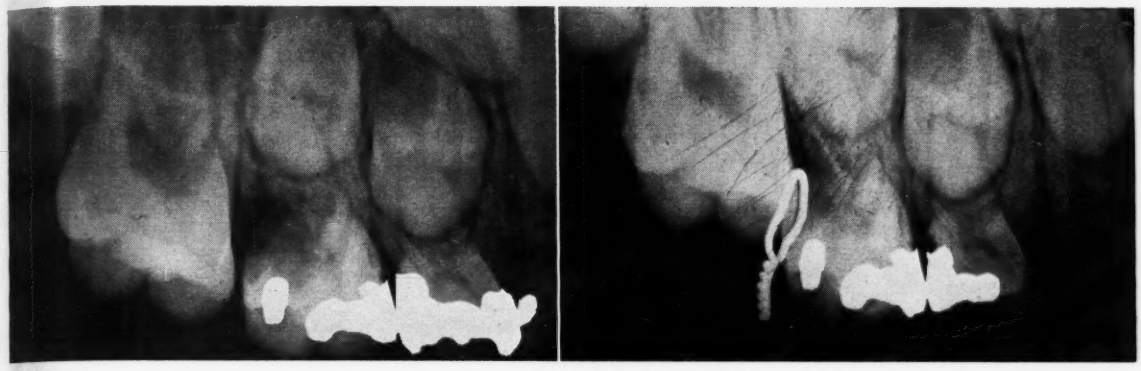


proper relation. The common denominator of the implementation, however, is invariably an incline plane. (1) A tongue blade, (2) enlarged crown form, (3) cemented acrylic, or (4) removable acrylic appliance can be used. Proper force in the proper direction is the major factor in correction.

Removable Appliance Illustrated: A typical removable acrylic appliance with an incline is shown in Figure A-1. Figure A-2 shows an anterior crossbite, and Figure A-3 shows the appliance in place with occlusion occurring on the incline.

Variation in Incline: Figures A-4 through A-11 illustrate crossbites treated with the acrylic type appliance shown in Figure A-1. The position and size of the incline will vary





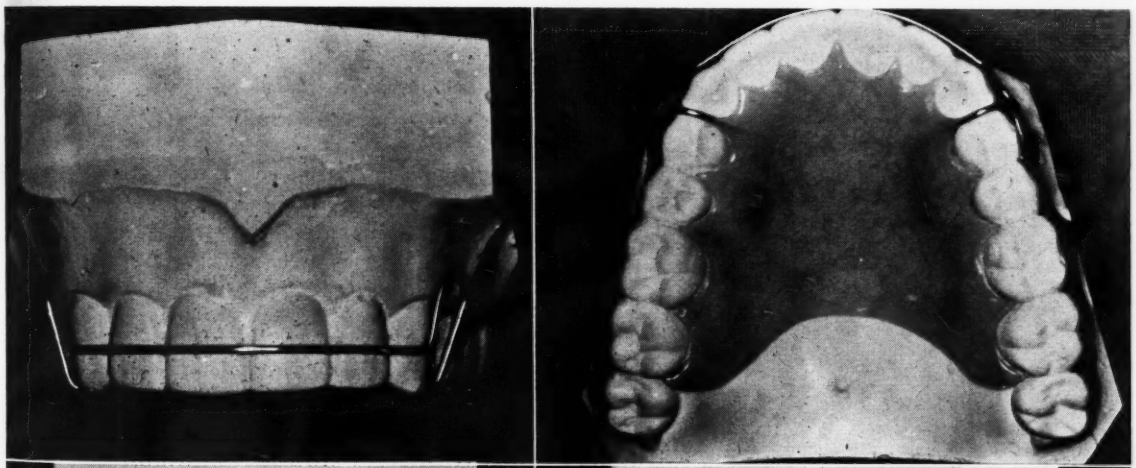
B2

with the tooth in crossbite. With the acrylic incline more bulk can readily be added. This usually makes it possible to continue the use of the same appliance until correction is achieved.

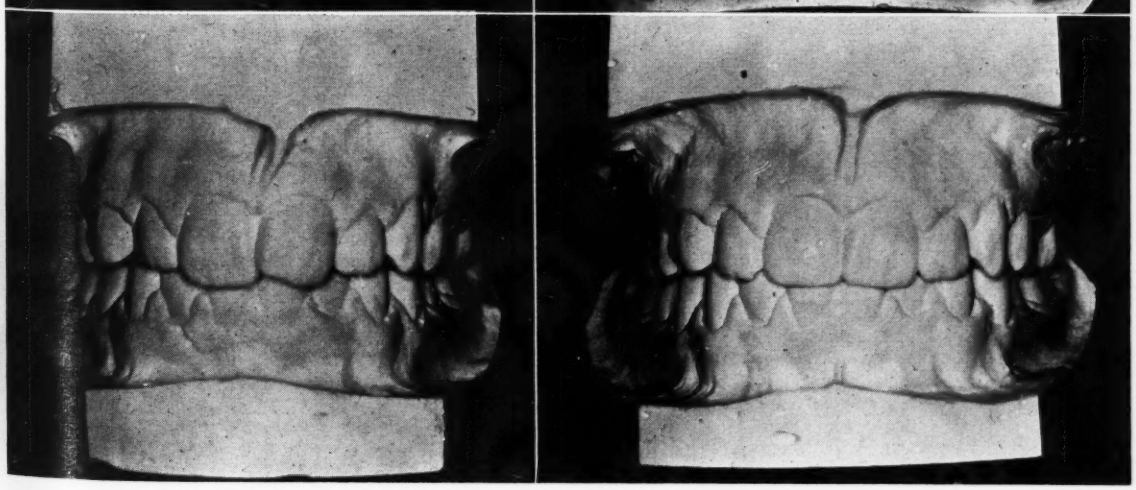
Ectopic Eruption—Figures B-1 and B-2 illustrate treatment of an ectopically placed maxillary first permanent molar. Routine radiographic examination is necessary for early diagnosis of this condition. When it is apparent that the permanent molar has begun to cause resorption of its adjacent primary tooth a brass wire may be inserted between the two teeth. This wire should be tightened periodically. When space has been gained between the two involved teeth normal eruption will usually guide the ectopically placed tooth to its proper occlusal position.

Hawley Acrylic Appliance — This appliance which is shown in Figure C-1 and C-2 can often be used in minor manipulation of anterior teeth.

Figures C-3 and C-4 illustrate reduction of minor overlapping of cen-



C2



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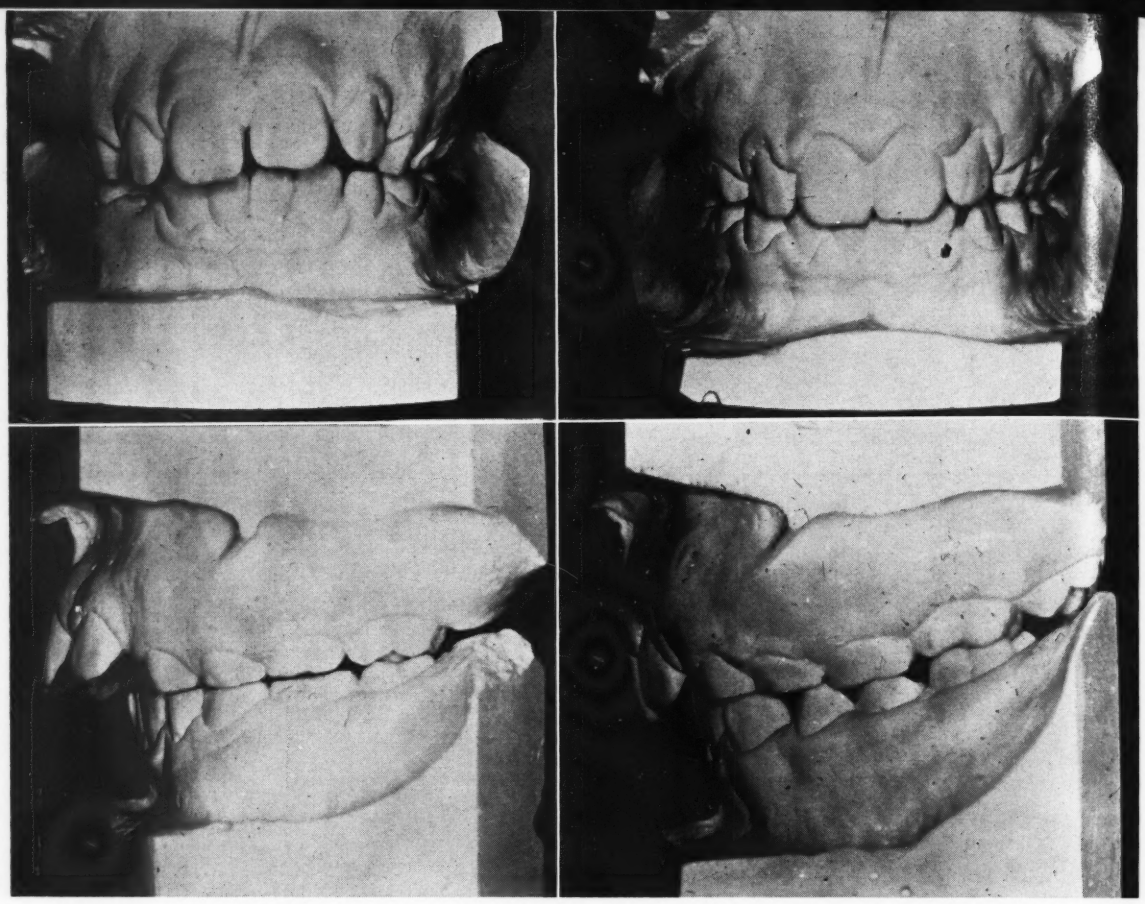

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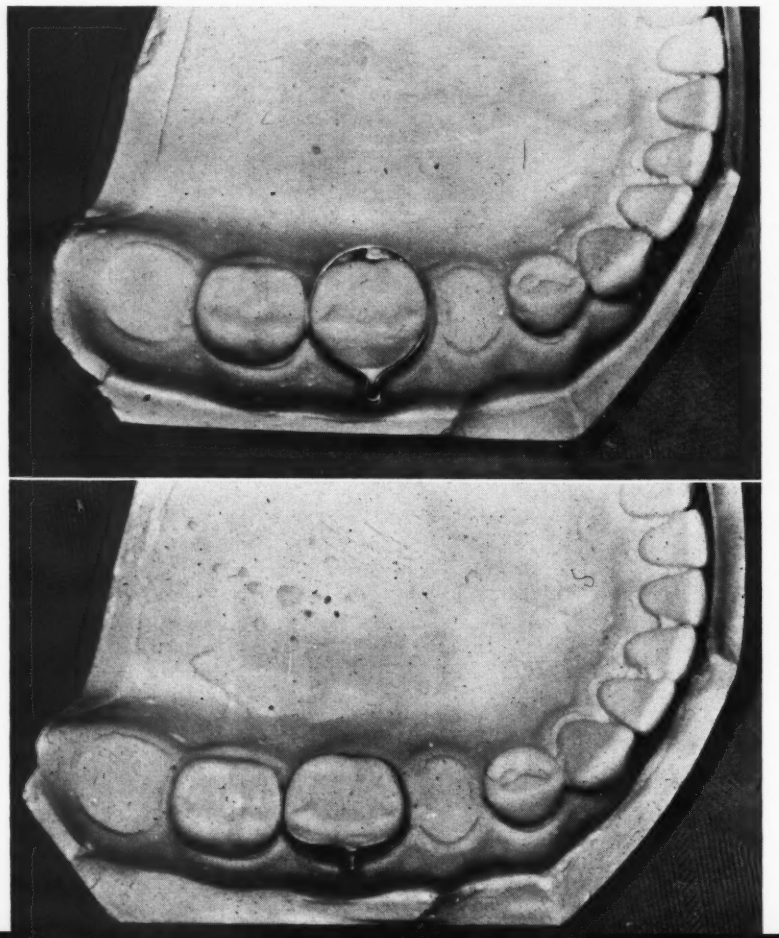
C7



D1

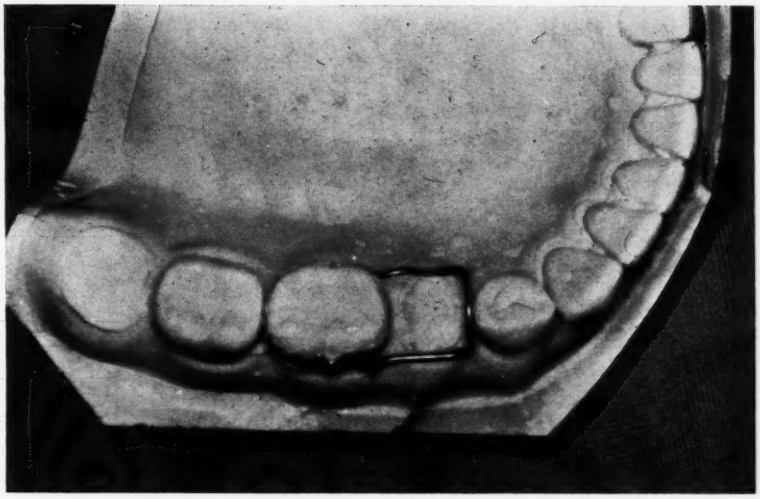
D2

tral incisors. Figures C-5, C-6, C-7, and C-8 show protrusion of maxillary centrals and laterals caused by thumb-sucking. A Hawley appliance was used for retraction of the incisors as well as an aid to correcting the thumb-sucking habit.

Space Maintainer—This is a valuable adjunct to interceptive orthodontics. The type shown in Figures D-1, D-2, and D-3 is a fixed maintainer, although removable ones can be used. A properly fitted fixed maintainer can be successfully constructed by contouring an orthodontic band directly to the supporting natural tooth. Figure D-1 shows the band in place on a model. When the band has been adapted to the patient's tooth an impression can be taken of the area and the band placed in the impression. A working model is poured from this

impression; when separated the band remains on the model as shown in Figure D-2. The maintainer can then be completed as illustrated in Figure D-3.

18551 *East Warren*



D3

Dental Implants

The treatment of patients who have persistent difficulty in wearing dentures would be simplified if a metal implant could be attached to the bone of the jaw with metal abutment posts, penetrating through the mucous membrane into the mouth, to which artificial dentures could be attached. Sporadic attempts have been made down the years to implant various metals, mostly into the sockets of extracted teeth, without success.

Development of Compatible Materials

In 1936 it was demonstrated that an alloy of cobalt, chromium, and molybdenum was physiologically compatible with the body tissues and their fluids, and orthopedic surgeons began to use it for a variety of purposes, implanting it into the tissues and fixing it to the bone by screws.

Use of Metallic Bar—In 1943 a metallic bar was inserted subperiosteally on the surface of the alveolar bone of the maxilla with four posts projecting through the mucosa.

Cast Vitallium Implant—As reported in DENTAL DIGEST in the issue of November, 1949, N. I. Goldberg and A. Gershkoff[1] inserted their first dental implant in 1948. This consisted of a cast Vitallium® base with four projecting posts. The mucosa of the mandibular alveolar process was reflected and the base of the implant laid directly on to the bone and held in place with screws. This implant was placed by a one-stage operation, that is, the implant was shaped to a model of an impression of the surface of the mandible taken over the mucous membrane, the model having been previously trimmed to what was considered to be the shape of the underlying bone.

Correction of Technical Fault

The weakness of this technique was that the implants fitted the bone surface inaccurately and the solid nature of the base interfered with the healing of the mucosa.

First Operation—The two-stage operation and the open meshwork base were therefore developed to overcome these difficulties. At the first operation the mucoperiosteum is widely reflected and an impression taken of the surface of the exposed bone. On the model cast from this impression the implant framework is constructed, care being taken to ensure that the framework is as open as possible compatible with strength and that the minimum of metal lies in the area of the suture line.

Second Operation — About three weeks later the mucosa is again reflected and the implant inserted. The mucosa is reunited with sutures and the periosteal fibres reattach themselves to the surface of the bone through the mesh of the framework of the base, binding the implant firmly to the bone, the four abutment posts protruding through the mucosa, which heals firmly round them.

Technique Successful — By this technique several hundred successful implants have been inserted throughout the world during the last 10 years, many of them having been in place for five years or more.

Indication for Implant Dentistry

One interesting aspect of the dental implant which differentiates it from all other types of implant is that the abutments, on which the denture is supported, penetrate the mucous membrane into the mouth. It was thought that such implants could not succeed because infection would invade the area of penetration. This fear has not in general been realized provided the implant remains firmly fixed in place. If it becomes loose for any reason, infection does penetrate and the implant has to be removed. There is no doubt that the dental implant has a place in dentistry. Patients wearing them successfully are much improved in general well-being and comfort, but they should be employed only when conventional methods have been tried, and failed.

Adapted from *British Medical Journal* No. **5205**:1076 (Oct. 8) 1960.

[1]Goldberg, Norman I., and Gershkoff, Aaron: The Implant Lower Denture, DENTAL DIGEST **55**:490-494 (November) 1949.

A Direct Approach to

FIXED FULL MOUTH REHABILITATION

JAY W. FRIEDMAN, D.D.S., Seattle, Washington

DIGEST

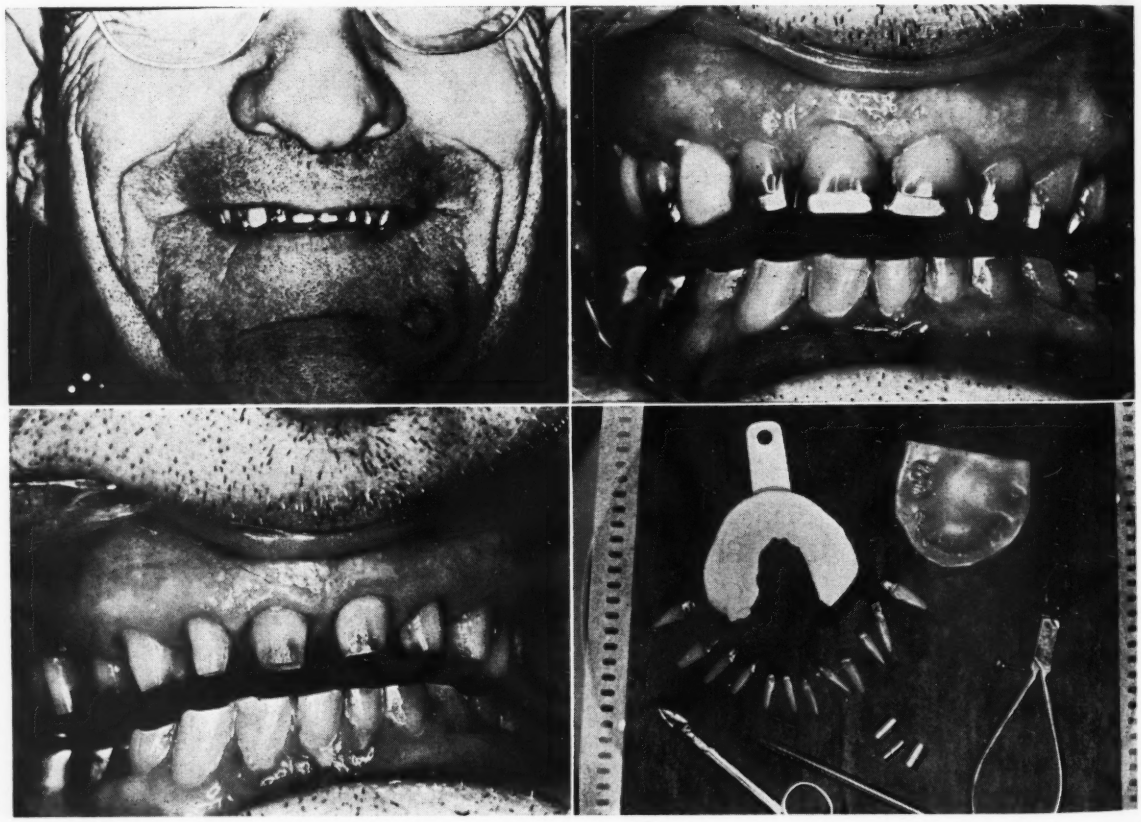
Many general practitioners avoid fixed full mouth restoration because of the extensive complications implied in the technique. By reducing the procedure to a simple, direct approach, any dentist capable of ordinary fixed bridge restorations is competent to complete full mouth restoration. Full crowns are the preparations of choice, with splinting to reinforce a weakened periodontium. Shallow intercuspation is preferred to steep inclined planes. Freedom from interference is more important than balance in lateral excursions. An equilibrated centric occlusion is the goal. This article presents the steps in a simple method to complete this technique.

Procedure

The following steps may be taken:

1) Since the vertical dimension will be increased in this case, all twelve maxillary preparations are accomplished at one sitting (Fig. 3).

2) Annealed copper band compound impressions are taken for each abutment preparation. A full plaster impression is used for seating the copper-plated dies. A simple wax bite is

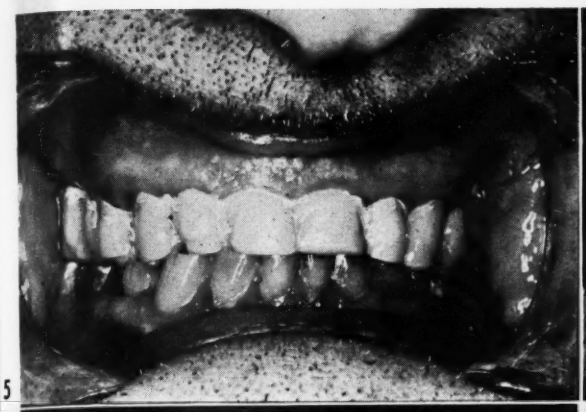


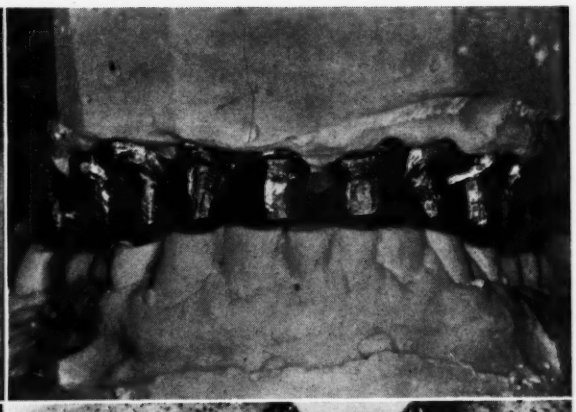
1.
Facial view before full mouth reconstruction.

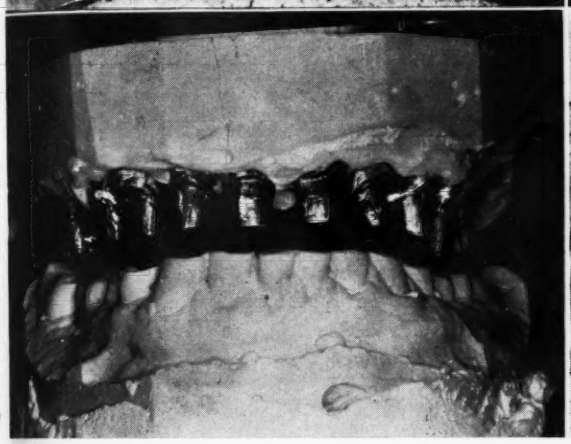
2.
Marked attrition resulting in decreased vertical dimension. Note the bulbous buccal contours of posterior gingiva which form ledges for food retention.

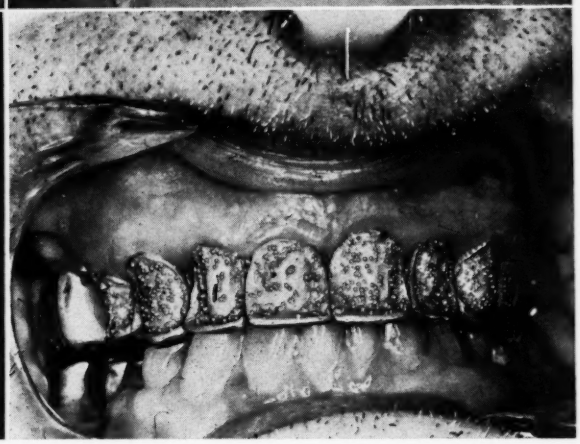
3.
Abutment preparations are completed at one sitting. Compare the gingival contours in this illustration with those in Figure 2, after osteoplasty of the buccal alveolar bone.

4.
A lower tray is used to facilitate removal of the upper plaster impression. Baade band-removing pliers prevent distortion of the copper band compound impressions.









5.
The immediate temporary acrylic bridge protects abutment preparations, provides satisfactory appearance, and serves as a reference point in measuring the vertical dimension.

6.
Models are shown articulated in "closed" position.

7.
The bite arbitrarily opened on the models.

8.
Maxillary full cast crowns shown fitted in the mouth. Occlusion is corrected for gross discrepancies.

sufficient for articulating the models (Fig. 4).

3) An immediate self-curing acrylic bridge is constructed from an alginate impression taken before the abutment preparation (Fig. 5). This bridge restores the original closed vertical dimension with sufficient accuracy to allow later measurements of the amount of bite opening.

4) The models are articulated in the closed position with the simple wax bite (Fig. 6).

5) The bite is arbitrarily opened on the articulator, taking into account the original loss in tooth structure as well as the additional reduction (which was slight) of the clinical crown in abutment preparation (Fig. 7).

6) All gold crowns are waxed, cast and individually fitted to the abutments in the mouth (Fig. 8). The occlusion is checked for gross discrepancies. The amount of bite opening can be estimated by measuring the distance between points on the tip of the nose and the chin when the temporary bridge is in place compared with that distance when the crowns are in place.

7) A simple wax bite is taken, followed by a full plaster impression of the seated crowns (Fig. 9).

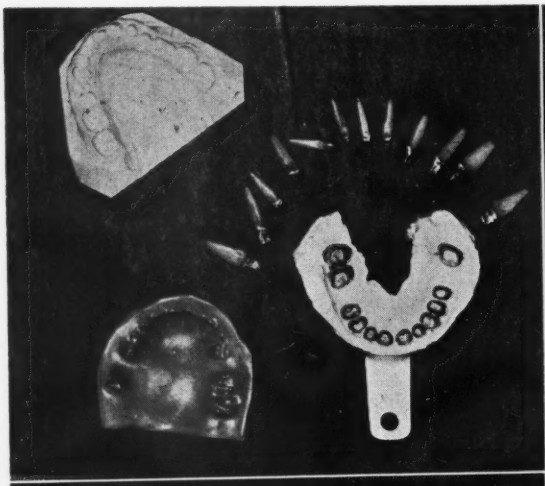
8) The crowns are soldered together on the master model. Meanwhile, the first three steps described are repeated on the mandibular teeth and the models are articulated (Fig. 10).

9) The maxillary fixed splint has been tried in the mouth. If necessary, solder joints are broken and new plaster impressions taken to correct an inaccurate fit. The maxillary bridge can be completed at this stage.

10) The bite is again arbitrarily opened for the construction of the mandibular bridge. Compare Figures 11 and 12.

11) Steps 6-9 are repeated for the mandibular splint. After the soldering is completed and examined for accuracy in seating, the occlusion is equilibrated.

12) The bridges may be inserted for a few days without cement to allow "settling." When satisfied that the vertical dimension is satisfactory and that the patient is pleased with the appearance, the bridges are inserted permanently with zinc oxyphosphate cement. The patient returns for repeated examinations to eliminate interference and prematurities. Gross corrections are done before final cementation to facilitate polishing, but the final equilibration cannot be ac-



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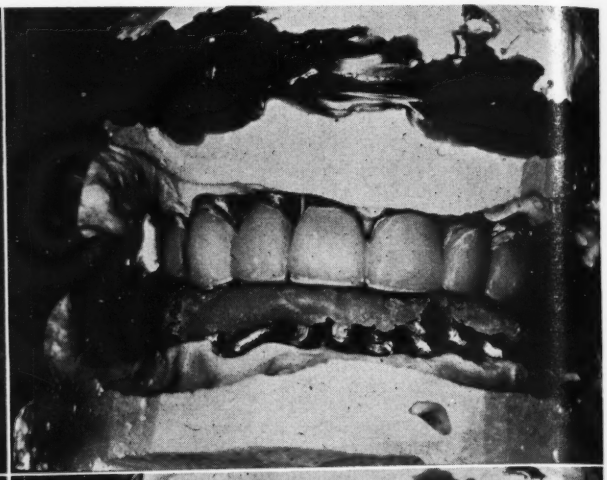

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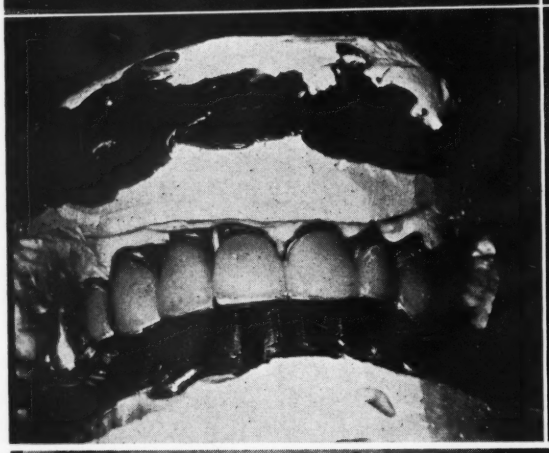

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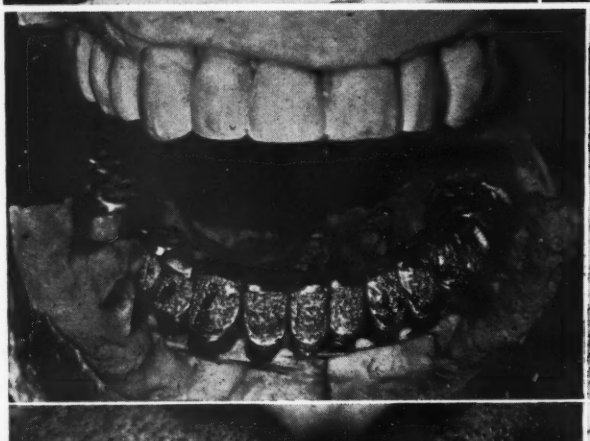

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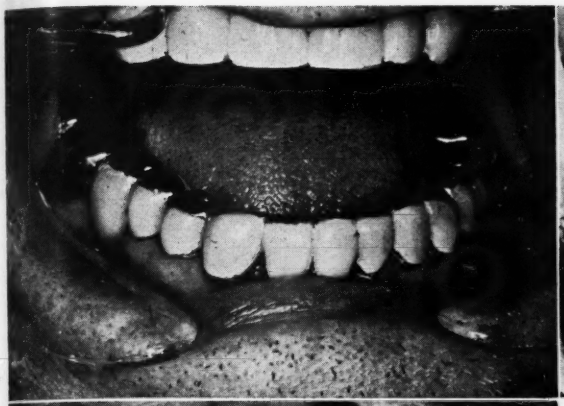
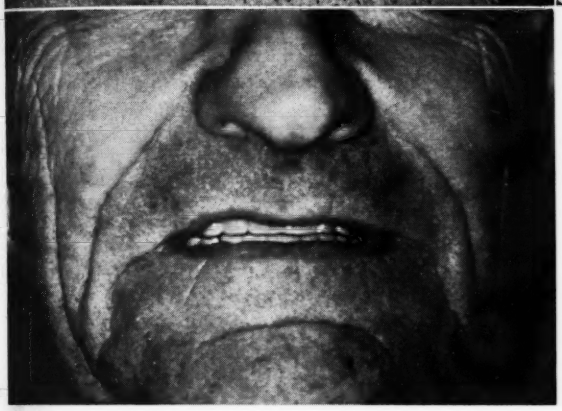




9.
Plaster impression of seated crowns after the wax bite is taken. Dies are replaced in crowns before pouring master model.

10.
The maxillary bridge has been soldered and tried in the mouth, then returned to model. Meanwhile lower abutments are prepared and the lower model is articulated with the upper in the "closed" position corresponding to the wax bite.

11 and 12.
The bite is again arbitrarily opened on the articulator in the presence of the patient for visual reference to the oral conditions.

13.
Mandibular full cast crowns are shown on model.

14.
The maxillary bridge has been completed and temporarily inserted. The lower crowns are fitted to the abutments and the occlusion is examined and corrected for gross occlusal discrepancies. The vertical dimension and freeway space are carefully evaluated at this stage.

15.
Maxillary and mandibular bridges in situ.

16.
Lateral view.

17 and 18.
Occlusal views. Note the shallow occlusal planes and the gold protection over the incisal edges of the acrylic veneer crowns.

19.
Facial view of completed full mouth restoration. Note the improved appearance.

complished until the bridges are permanently placed.

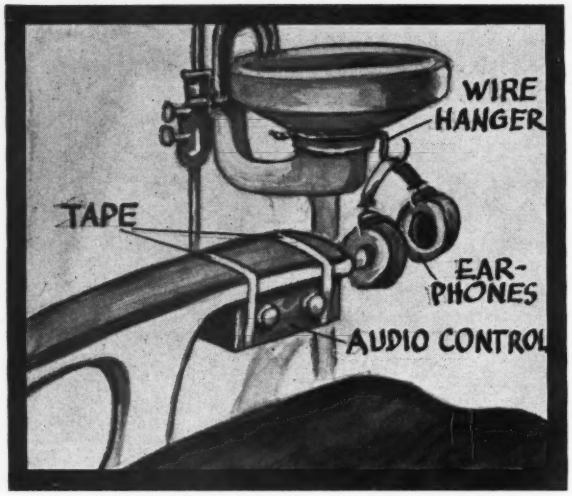
13) The patient is instructed in the use of interdental stimulators and routine home care, since there is a tendency to develop hyperemic and hypertrophic gingival papillae around large fixed splints.

Discussion

Full mouth restoration is employed to restore lost vertical dimension, replace missing teeth, and strengthen a weakened periodontium. The replacement of teeth and splinting to reinforce the periodontium are fairly well defined procedures. Bite raising is, however, subject to considerable latitude. Fortunately, the freeway space is not a critical factor provided that the maximum dimension is not violated. The same considerations prevail in full mouth restoration as in denture fabrication. A sense of "feel" as well as esthetic requirements are the governing factors in arriving at a relatively arbitrary vertical dimension. The patient's comfort (tolerance) will determine the ultimate success of the treatment.

The technique described is simple and direct. The entire procedure, exclusive of occlusal equilibration after cementation, can be accomplished in ten to twelve appointments. Fixed full mouth restoration can be undertaken successfully by the general practitioner.

118 *Broadway East*



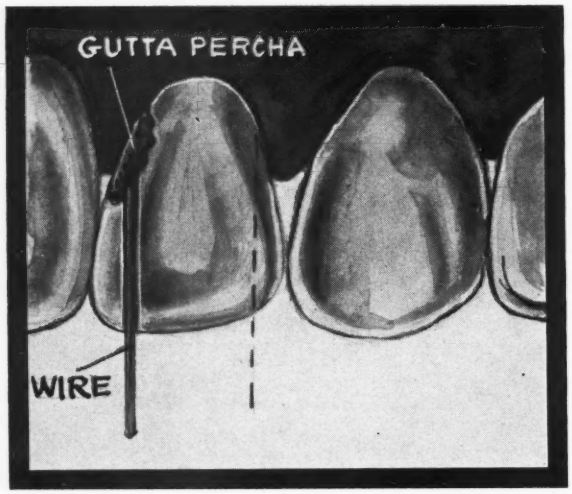
1

Clinical and Laboratory

Efficiency with Audio-Analgesia

John M. Stroud, D.D.S., Louisville, Kentucky

1. The earphones may be attached to the outside of the cuspidor with a wire coat hanger and the control box fastened to the left arm of the dental chair with tape.

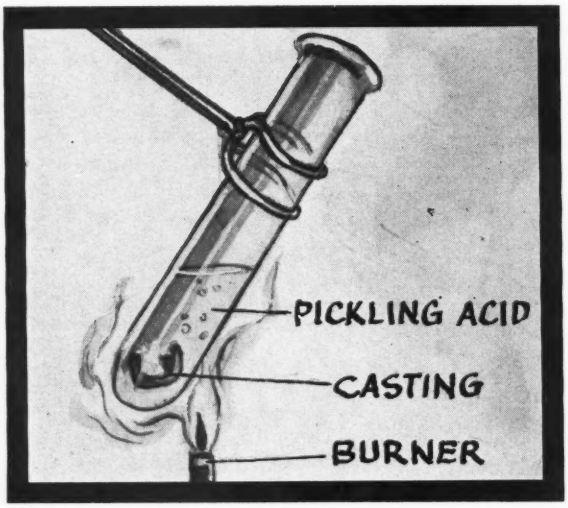


2

Guide for Paralleling Grooves

R. W. Pedersen, D.D.S., Boyd, Minnesota

2. After the first groove on the preparation is made place a piece of wire in the groove to act as a guide to make the other groove. This will assure the proper angle and parallelism.



3

Pickling Small Castings

Rolla R. Burk, Jr., D.D.S., Watertown, Massachusetts

3. Place the casting in a pyrex test tube and cover with acid. Bring the acid to a boil over a Bunsen flame.

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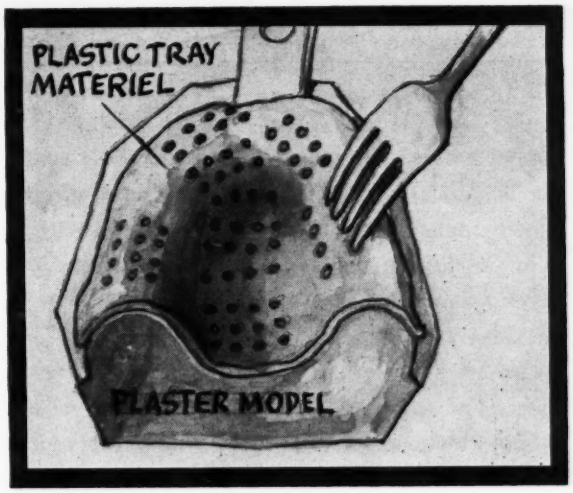
SUGGESTIONS . . .

Perforated Impression Tray

Philip C. McCauley, D.D.S., Akron, Ohio

4. While the plastic tray material is still soft perforate it with a kitchen fork to obtain the proper number of perforations.



4

Instrument with Cord or Tubing Attachments

Robert C. Ryan, D.D.S., Muncie, Indiana

5. To assure proper balance of the instrument make a loop in the cord or tubing and secure with tape. When the hand is placed through this loop the weight of the instrument is carried on the wrist.

5

Control of Bleeding

Lawrence Wiland, D.D.S., Flushing, New York

6. When upper and lower teeth are extracted at the same time cover a wax bite with sterile gauze and have the patient hold this appliance in position to control bleeding.

6

volved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 344 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

The EDITOR'S *Page*

MEASUREMENTS to record the effects of stress on the human organism are becoming more precise. Blood studies of the output of adrenal corticosteroids are the most accurate present measurements. Selye's concept of the "alarm reaction" as part of the General Adaptation Syndrome has made biologists more aware of the role of the adrenal cortex in stress. The amounts of adrenocorticoids in the circulatory blood are demonstrated by laboratory tests.

Every dental clinician is aware that the dental experience is a stressful event for many people. Apprehension, fear, anxiety, pain are all stimulants of the adrenal cortex. Stimulations of the sympathetic pathways of the autonomic nervous system reach the master pituitary gland. From this gland impulses travel to the adrenal cortex and are expressed by acceleration of the heart beat and respiration, elevation of the blood pressure, and an increase in the corticosteroids in the blood.

Episodes of hyperactivity of the sympathetic portion of the autonomic nervous system are not pleasurable whether they are associated with the dental experience or some other. The use of tranquilizing drugs has become popular because these agents suppress these unpleasant reactions that follow stimulation of the sympathetic nervous system.

It is of clinical advantage for dentists to know what procedures are most stressful to patients. A team of Air Force dental officers conducted a controlled experiment to answer three specific questions:

"1. Does the administration of local anesthetic agents in the oral area produce detectable cortical response? If so, is there a difference in response to commonly employed anesthetic agents? Is the site of the injection of significance in this regard?

"2. Is a simple extraction procedure predictably associated with cortical stimulation?

"3. Is the psychic insult of anticipating an appointment for exodontia detectable in blood adrenocortical steroid levels?"[1]

The results of the study are:

1. The type of local anesthetic or the kind of injection did not make any significant difference in corticoid response.

2. A simple extraction procedure produces a significant steroid increase immediately following surgery. The peak level was at the 15-minute sampling time.

3. "Psychic trauma of anticipating oral surgery appeared to be a significant stimulus to the cortex."

"In the present study, the significantly higher levels of 17-OHCS in the forewarned subjects suggested that the anticipation of the oral surgical procedure was the cortical stimulant. The absolute validity of the relationship between steroid levels and psychic trauma per se cannot be positively identified, however, until steroid levels are studied in reference to other psychiatric assessments of emotional status. With the high preoperative level, it is impossible to draw conclusions relative to the cortical stimulus associated with the exodontia procedure except that probably no major stimulus was involved. Clarification is expected from current studies in which the subjects are not aware that an extraction is to be performed."

This study suggests that anxiety, apprehension, and fear are more stressful than either the local anesthetic or the surgical procedure. The patient who remarks, following an extraction, "That wasn't so bad," is making an accurate biologic evaluation. Anticipation certainly sets off the "alarm reaction" with more power than does the actual surgery. This should have clinical applications.

The dentist who has developed the art of patient management, who has the power to inspire confidence, who has the skill to use positive suggestions, is the clinician who will be sought for his services. If he uses preoperative sedation and tranquilization he will be doubly blessed by his patients who are confronted with stressful dental situations.

---

[1]Shannon, Ira L.; Prigmore, John R.; Hester, Warren R.; McCall, Clarence M.; and Isbell, Gerald M.: Stress Patterns in Dental Patients: Local Anesthesia and Simple Exodontia, School of Aviation Medicine, USAF Aerospace Medical Center (ATC) Brooks Air Force Base, Texas (December) 1960.

MEDICINE and the Biologic Sciences

Black Hairy Tongue

The suppression of the normal microorganisms within the oral cavity by antibiotics allows resistant bacilli, cocci, and fungi to multiply in the feathery papillae of the tongue dorsum. The resultant flora and increase in local acidity interfere with the normal hyalinization and desquamation of the epithelial cells covering the lingual papillae. Heavy discolored keratin tips appear and give the tongue a hairy appearance. This process spares the tip and the sides of the tongue.

Most patients note fetid taste in the mouth and sore dry throat. Pain may extend to the back of the neck and down anteriorly toward the thyroid area.

Allergic reactions to the lingual organisms vary from nasal stuffiness to full-blown allergic rhinitis. Sinuses, conjunctivae, eyelids, and external auditory canals may be affected. Vaginitis, pruritis ani, and cystitis also may accompany the tongue lesion.

The tongue is generally powdered with pancreatin which is allowed to remain on the tongue five to fifteen minutes. The patient is instructed not to swallow while the powder is in the mouth. After the pancreatin has softened and dissolved the mucoid blanket and filiform papillae, the patient spits out the accumulated saliva and powder. The tongue is then scraped with a No. 10 blade held firmly with a curved forceps and generously swabbed with crystal violet aqueous solution.

The patient is instructed how to keep the tongue clean at home, but the stain should be used only five days at a time to prevent a reaction. Vigorous brushing of the tongue with a toothbrush as frequently as practicable is encouraged.

B complex with vitamin C and sometimes large doses of oral vitamin A are essential to maintenance of the nutritional status of the patient.

Parabromylamine maleate is more effective than other antihistamines against the allergic manifestations accompanying black hairy tongue. Corticosteroids alleviate allergic symptoms but also favor spread of fungi.

Antibiotics are discontinued when the patient is first seen. Even those to which the actual infecting organisms on the tongue are most sensitive are not given. Occasionally purulent sinusitis or other serious complication necessitates the administration of antibiotics, and even though vitamins and antifungal agents are given to these persons during the course of treatment, coating of the tongue will increase.

Lineback, Merrill: *The Biocenologic Approach to Black Hairy Tongue with New Concepts of its Treatment, Laryngoscope* **69**:1194-1212 (October) 1959.

Strokes—Surgical Therapy

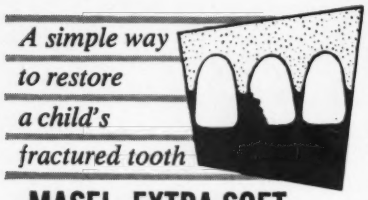
It appears that about 40 per cent of the patients with neurologic syndromes simulating stroke have atherosclerotic occlusion of the internal carotid or vertebral arteries in the neck, rather than of the inaccessible intracranial vessels. Cerebral function depends upon a balanced arterial flow through the four major cervical trunks and their intracranial branches. Atherosclerotic plaques developing at the point of origin of the internal carotid and vertebral arteries narrow the lumen and produce complete occlusion.

Thrombo-occlusive disease of the cervical carotid or vertebral arteries is clinically characterized by rapidly or slowly progressive syndromes featuring blindness, aphasia, sensory and motor disturbances, convulsion, coma, headaches, memory loss, confusion, and senile dementia. Three clinical syndromes may be recognized: (1) The onset may be explosive and result in the clinical pattern of a fully developed stroke. (2) There may be recurrent episodes of a transient nature lasting from a few moments to hours and followed by complete or partial recovery for some time before a catastrophic event occurs which produces severe disability or death. (3) A slowly progressive course may be associated with headaches, parethesias, irritability, memory loss, and mental deterioration.

The occurrence of any of the symptoms should arouse suspicion of caroticovertebral stenosis or occlusion. Inequality of the carotid pulsations is suggestive. Absence of carotid pulsation in the neck indicates occlusion of the common carotid. The presence of a localized systolic murmur over the carotid bifurcation in the absence of a transmitted murmur indicates a partly occluding lesion. Of special usefulness in diagnosis is the measurement of retinal artery pressures bilaterally. The pressures are low on the side of carotid artery occlusion. Final diagnosis can be made only by angiography or direct exploration. Angiography should be carried out promptly in all patients with symptoms of cerebrovascular insufficiency, to determine the exact anatomic distribution of vascular occlusion, if any, and to assess the status of the collateral circulation.

Since the atheromatous lesions are essentially segmental in nature, they are amenable to arterial reconstructive techniques. There are several

(*Continued on page* 342)



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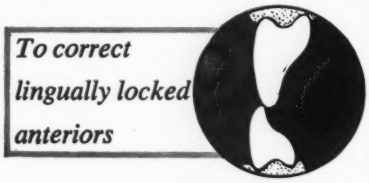

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methods available for such surgery. If surgery is carried out before thrombosis becomes irremovable or brain damage becomes irreversible, excellent results may be obtained, and a significant number of patients will be salvaged.

Denman, F. R.: Surgical Therapy of Strokes, Texas J. Med. **55**:563-567 (July) 1959.

Obesity— Dietary Treatment

Many people become discouraged with diets designed to reduce obesity. Usually the weight loss is too small to satisfy these persons. Reducing diets that provide 1,000 or more calories a day induce an extremely small daily weight loss. Patients become discouraged at the almost imperceptible effect of the diet and frequently abandon treatment before any significant weight loss has occurred.

The emphasis on calories also contributes to the frequent poor results of dietary treatment of obesity. Many patients do not know the exact composition of the various foodstuffs and fail to weigh the food. Thus, the translation of calories into meals is inaccurate and, in some instances, can easily increase the intake of calories by 50 per cent or more.

Obese patients do much better if daily weight loss is appreciable, food rather than calories is prescribed, and the diet is limited to a specific number of days. A forty-five-day, 550-calorie diet is effective. Patients are willing to suffer forty to forty-five days for the reward of losing weight rapidly.

Patients eat 2 meals daily, each consisting of (1) 100 grams of veal, beef, chicken, or fish weighed raw and served grilled or broiled, (2) 1 ordinary serving of fresh vegetable, boiled or raw, (3) 1 rusk weighing 10 grams, (4) half a lemon, and (5) an apple or orange or 60 grams of other fresh fruit.

The meals are eaten at any time preferred by the patient. The intake of salt, pepper, water, tea, or coffee without sugar or milk is not restricted. Patients are not told the caloric value of the diet, and the caloric equivalent substitution is not permitted.

The diet is prescribed for consecutive days. The patients are told that a 20-pound weight loss can be anticipated. The patient is instructed not to alter usual activity and to return at the end of the prescribed period for reexamination. If additional weight reduction is desirable, the diet is repeated after two months.

Some patients are constipated throughout the course of the diet. No other ill effects of the diet are noted. Hunger is common during the first few days of the diet and may be replaced later by slight weakness. However, the weakness does not interfere with usual activities.

Sohar, Ezra: A Forty-Day 550-Calorie Diet in the Treatment of Obese Outpatients, Amer. L. Clin. Nutrition **7**:514-518 (August) 1950.

Acute Infectious Arthritis

Acute infectious arthritis is usually caused by one of the pyogenic cocci, gonococcus, meningococcus, pneumococcus, staphylococcus, or streptococcus. It is less common now than formerly because of the widespread use of antibacterial agents. Recently, however, some types have attracted attention both because of increased frequency and because of their difficulty in management. These are: that seen in premature infants, that due to resistant strains of staphylococci, that resulting from intra-articular injections or aspirations, and that accompanying malignant disease complicated by infections with enteric organisms.

The inflammatory type varies in character and severity with the nature of the organism, stage of the host, and duration of the infection. In the more severe suppurative infections rapid lysis of the articular cartilage takes place, particularly at contact sites. Edema fluid and polymorphonuclear leukocytic exudate from synovial granulation tissue give rise to early effusion into the joint. As the infection subsides, fibrous repair of the destroyed articular and synovial surfaces leads to ankylosis.

Usually the disease is monarticular. The symptoms come on abruptly and develop rapidly. The affected joint is red, hot, swollen, and exquisitely tender. Motion accentuates the pain and, if one of the articulations of the lower

(*Continued on page* 344)

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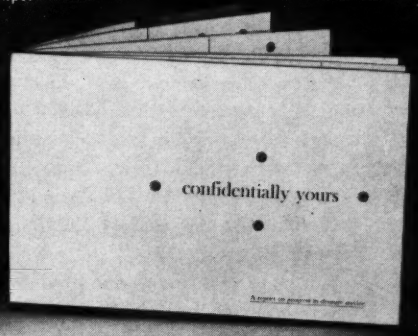

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extremity is involved, weight-bearing on that extremity is impossible. If the arthritis has developed from a hematogenous spread, a second or even multiple joints may later be involved. Involvement of the spinal articulations is uncommon.

Roentgenographic changes usually occur in acute septic arthritis earlier than in the more chronic varieties. Osteoporosis may be seen within a week. If the disease remains untreated, evidence of cartilaginous destruction in the form of narrowed joint space may appear within two weeks to be followed by osteomyelitis, periostitis, and epiphysitis.

The treatment is directed along two lines: first to control the systemic and joint infection and second, to preserve the joint and its function. Penicillin or one of the broad-spectrum antibiotics will usually be found effective. Early and vigorous treatment is indicated. In addition to the systemic treatment, local therapy is indicated. Immobilization of the joint by splint or traction in order to control pain and maintain proper position, should be accomplished as soon as possible.

Prognosis as to life is determined by the nature and severity of the systemic disease. The prognosis for complete restoration of joint function depends primarily on the time lapse between the onset of symptoms and the institution of specific therapy. Usually it is excellent if adequate therapy is started within the first week. After the third week prognosis is usually poor.

Special Article: Primer on the Rheumatic Diseases, JAMA **171**: 1680-1691 (November 21) 1959.

Burns Among Children

In the first five years of life, accidental injury from burns, fire, and explosions ranks second as a cause of mortality from accidents. In addition, burn injuries result in tragic disfigurement, scarring, and grief as well as enormous economic losses. It is estimated that 85 per cent of childhood burns are preventable.

Burns to children occur predominately between the ages of 6 and 18 months. During this period, boys are burned twice as often as are girls. This is probably because boys are generally more active and more exploratory.

Most burns occur in the kitchen and are caused by hot liquids, particularly coffee and tea. Others result from direct contact with flame, hot ashes or hot stoves, or from ignition of clothing. As often as not, a parent is in the room with the child when the burn occurs.

Since most burn accidents from hot liquids occur in the kitchen, toddlers should be excluded from the kitchen during preparation of meals. If possible, the kitchen should be closed off with a gate. Otherwise special precautions are essential, for example all dangling appliance cords must be placed beyond the child's range of access and coffee and other hot liquids kept out of reach.

Efforts at preventing accidental burns should be intensified during the age period of 6 to 18 months. Similarly, children under 6 months of age should be guarded against falls. Children 3 to 9 months need protection from swallowing foreign objects. Accidental poisoning is particularly common among children 12 to 36 months old.

Guidance charts indicating frequency of dangers at different ages are available. Parents should have these to stress the possible accident hazards. A word of caution from the family physician at an office call or a home visit can make parents aware of potential dangers and lead to measures for prevention of accidents.

Jensen, Gordon D.: Preventive Implications of a Study of 100 Children Treated for Serious Burns, Pediatrics **24**:623-630 (October) 1959.

CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 338 *and* 339)

Forms to be Used by Contributors

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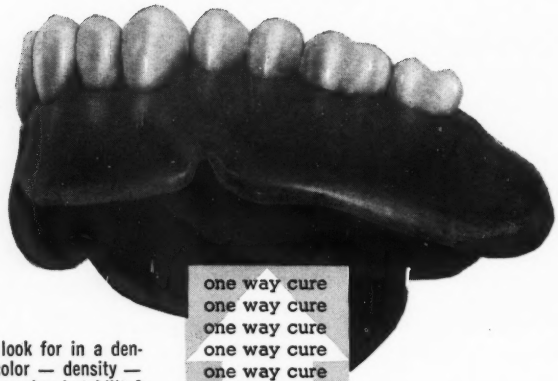

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ON THE DAY that the Russians put a man into space and returned him to earth a scientist in the United States announced that cigaret smoke may contain agents that *prevent* cancer. That is a switch in emphasis. This will be good news to the manufacturers of the 40 different brands of cigarets that are offered to the American people. It is a happy day for the pitchmen who will now work overtime to convince us that cigarets are good clean fun and safe for everybody.

The statement that there are anticarcinogens in cigarets was reported by a reputable scientist from the Sloan-Kettering Institute before the American Association of Cancer Research. On closer reading of the statement it is not so sensational as the newspaper headline ("Finds Cigaret Smoke May Block Cancer") would suggest.

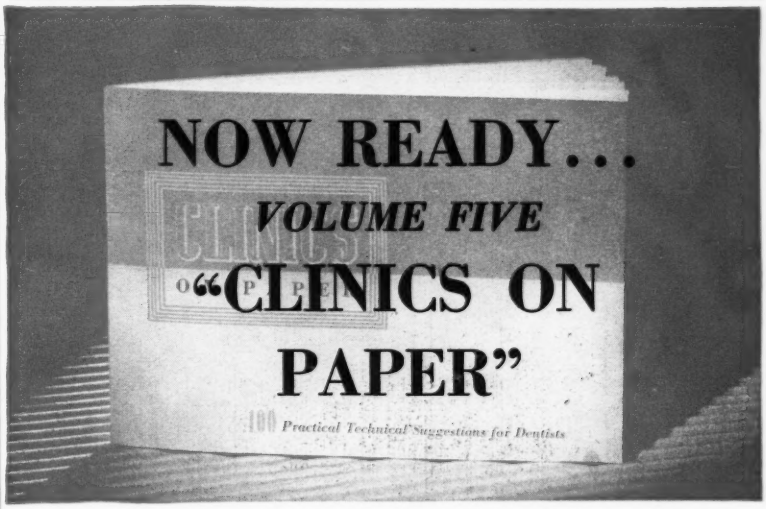
The anticarcinogens are supposed to be present in cigarets along with the dangerous carcinogens; both wrapped in the same neat little white bundle. It seems to be a toss-up between which group of chemicals holds the balance of power. Until more facts are available the safer course is to assume that the presence of the proved carcinogens is more potent that the supposed cancer prohibitors. That is, consider that cigaret smoking is not a healthful habit, albeit a pleasant one.

I hope that the tobacco growers are aware of the economic threat that confronts them. It may not be long before their crop is so tampered with by biochemical engineers that the additives will take the place of the tobacco. In time a cigaret will be a miniature chemical plant, an incidental tobacco product. The filters, the chemically treated papers, the carcinogenic prohibitors, the additives to induce more complete combustion and anticarcinogens will take up most of the cigaret. The tobacco will be a trace element. An industry is endangered.

Before World War I the cigaret was a mark of corruption and depravity when used by men and an impure symbol of loose morals when used by women. The true man "rolled his own" cigaret. This was a maneuver of some digital skill. Some men were so expert that the fabrication was done with one hand. The tobacco was unadulterated and the flimsy cigaret papers were reasonably free from chemical contaminants. If people were suffering from lung cancer they kept the secret to themselves and from their physicians. The "tailor made" cigarets were pure tobacco and sold for ten cents a package. They were strong indeed, but less potent than my uncle's cigars that induced acute reverse peristalsis and vertigo.

I have no feud with cigaret makers, but it may be that the incidence of lung

(*Continued on page* 348)



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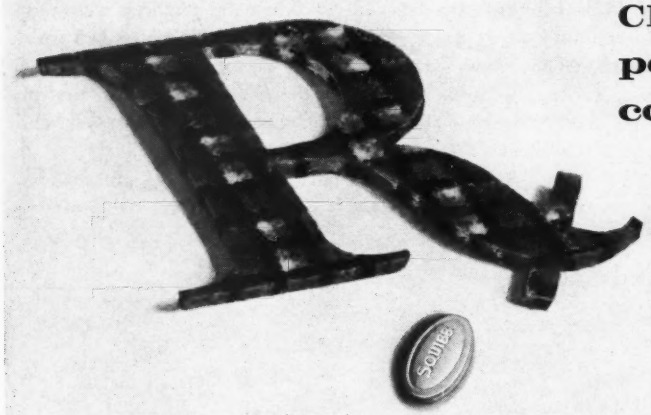

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cancer has risen steeply since the introduction of fancy filters and chemicals. The suggestion that more chemicals be added to stimulate combustion and the anticancer properties of cigaret smoke is a chilling prospect.

Can You Tell a Neurotic When You Meet One?

Dentists treat objective disease that may be seen, felt, or demonstrated in an x-ray. We are more fortunate than our medical colleagues who are frequently called upon to treat bizarre and subjective complaints. The more vague a complaint the more likely that it may be compounded by a neurotic component. A cavity in a tooth, a periodontal pocket about a tooth, a malocclusion may be seen with the unaided eye in most instances. The "fit" of a dental appliance is an objective event.

The reactions to pain and to dental treatment, however, may have strong psychic overtones and often it is difficult to know if a neurotic component is present or not. It is in the field of reactivity to treatment that the dentist may be confronted with a difficult differential problem.

Anxiety and fear are normal reactions to unpleasant and unfamiliar experiences. We all suffer from these miserable feelings to some degree and under certain conditions. When anxiety and fear are so overpowering that they immobilize a person to the degree where he will not seek or accept dental treatment we are then face to face with a neurotic reaction.

The word "neurotic" is tossed about with too much abandon. It has a definite meaning and should be used with more precision. Joseph F. Griggs (*Postgraduate Medicine*, March 1961) gives us a clear set of differential criteria to use to separate the stigmata of the neuroses from organic disease:

"1. Neurosis must be included in the diagnosis whenever the patient uses any aspects of the illness to escape from or to excuse himself from his appropriate responsibilities, opportunities or relationships. This mechanism is an unconscious device which usually deceives the patient himself. Thus it is in sharp contrast to the malingerer's conscious intent to deceive others than himself. The neurotic is the first to be deceived about himself and the last to believe what he is doing. Disabled neurotics who are unable to perform certain duties are often efficient and conscientious about other obligations which do suit them, for example, entertaining or keeping up a large correspondence or advising their grown-up children.

"2. Neurosis may be included in the diagnosis if the patient uses the illness to obtain other satisfactions extraneous to the disease and its symptomatology. This includes using unnecessary doctor's visits to substitute for social life, friendship, love; to impoverish a hated husband or to obtain sympathy; to attain fashionable status; to lean on a father figure, or to 'adopt' a bright young man—the physician.

"3. Neurosis may be included in the diagnosis if the patient repeatedly sabotages effective treatment. When an ailment is somehow precious to the patient he finds some reason to change doctors or to stop treatment at the point when he sees that therapy is about to require him to behave or per-

(*Continued on page* 350)

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form like a healthy person.

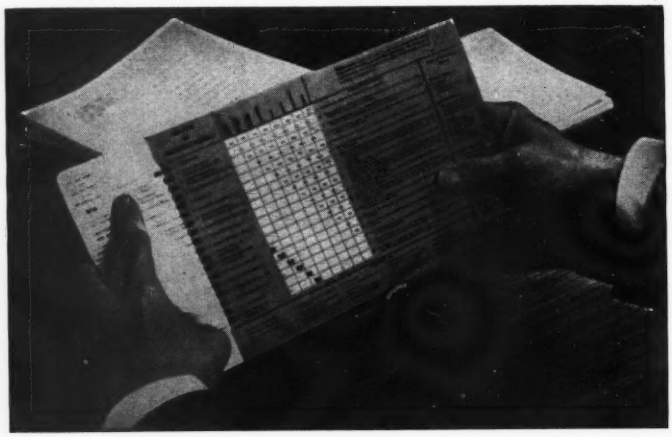
"4. Neurosis may be included in the diagnosis if the patient displays an intractable disability due to fears or lack of stamina so deep-seated in the personality that hope of cure has been abandoned by all concerned. This condition is probably better included among the psychoneuroses. It has also been referred to as psychasthenia and constitutional inadequacy.

"5. Neurosis is not justified as the medical diagnosis when the aforementioned criteria are not satisfied, nor is it justified simply because the physician cannot diagnose an organic disease, or because the patient gives an unsystematic and dramatic history with bizarre symptoms, or because of numerous surgical operations and multitudinous diagnoses in the past, or any similar superficial suspicion of a neurotic state. *Where the illness is providing no escape from life and work, it is not a neurosis.* Patients with organic illnesses and persons with certain psychoses can keep working to the edge of exhaustion for years, but the neurotic patient is the one who has the 'exhaustion' and the illness in order to avoid, unconsciously, the work or other responsibility.

"6. Even when a neurotic reaction pattern is identifiable, a diagnosis of neurosis is not sufficient if it is not competent to explain the entire clinical picture. When a patient fails to recover from a somatic disease within the usual prognosticated period of time one should consider whether the disability is being prolonged by the patient's discovery of some neurotic satisfaction in it. But when the past history of such a patient shows singular freedom from neurotic behavior prior to the attack, one should suspect a persistence of the organic disease rather than a basic neurosis, or in addition to a reactive neurosis. Hundreds of patients in my experience have been rehabilitated by new therapeutic attacks on old ailments which other doctors considered cured long ago. Many of these patients were thought by family and friends to be merely neurotic and 'frail' or were diagnosed 'postinfectious neurasthenia' by their doctors for so long a time that they came almost to believe it themselves and to behave neurotically to some extent, with appropriate guilt feelings, resentment, or both. The clue to these patients was that they were really doing their best to carry on, not to escape their duties. They had chronic disease or sequelae of some illness whose termination is not demonstrable objectively and which is merely assumed to be 'self-limited.' These are cases of iatrogenic neurotic reaction superimposed on an unrecognized persistent somatic disturbance.

"By making an unwarranted diagnosis of organic disease on mere suspicion, iatrogenic neurotic reactions can also be superimposed on a patient who has simple anxiety without organic disease. This can be a serious disservice to a patient who is already basically neurotic, because it confirms him to his delusion of disability. However, in persons who are not basically neurotic this reaction is temporary and easily dispelled. In contrast, a really neurotic patient is not cured by the physician's authoritative reassurance that there is no organic disease present, and neither is the patient

(*Continued on page* 352)



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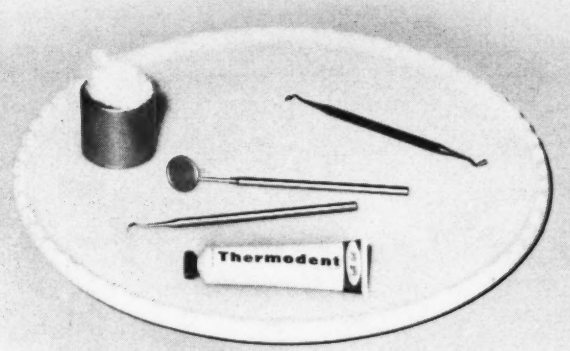

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The desensitizing agents you apply at the chair are effective in relieving dental hypersensitivity, but their effectiveness is often limited by the infrequency of patients' visits. Relief can be obtained *between* office visits with Thermodent Tooth Paste, a desensitizing preparation that patients can use at home in place of their regular dentifrice. A pharmaceutical preparation with over six years of clinical success, Thermodent combines *proven* desensitizing agents in convenient tooth paste form.[1-3]

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1. Fitzgerald, G.: Dental Digest *62*:494 (Nov.) 1956. 2. Abel, I.: Oral Surg. *11*:491 (May) 1958. 3. Toto, P. D.; Staffileno, H., and Gargiulo, A. W.: J. Periodontology *29*:192 (July) 1958.

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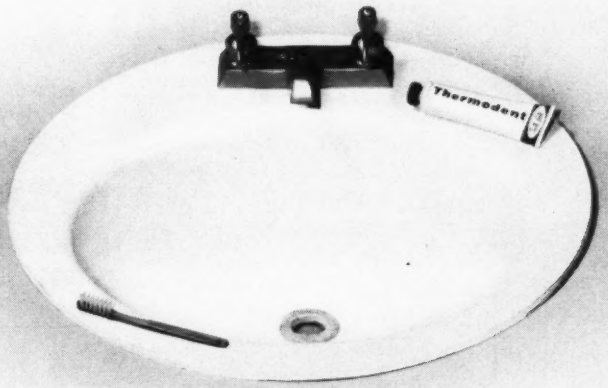

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whose organic disease has been missed."

Although dentists are not required to treat the neuroses they should be prepared to recognize them. They will see them often in the dental office. If dentists are so prepared they will save themselves and their patients considerable stress and strain.

Wonderful Indeed!

My one-man campaign to combat overuse of the word "wonderful" has been a total flop, an abject failure. But zealots are not easily put down. I shall persist, alone if need be, to free the television channels and the radio airways from the constant and trite use of a perfectly fine word in the wrong places.

To free myself from the fanatic's label I wish to report a sound and honorable scientific experiment that I have conducted at my own expense and without university auspices or government grants. I wish to report on the results of my dedicated hours (an indefinite number, and this is not *good* science) before the television screen and also alone in a darkened room before a radio set (1948 model). In this atmosphere of austere scholarship I have recorded "wonderful" used to describe:

- a beer like no other
- a kind of men's underwear
- an underarm deodorant that makes one loved more
- a used car that will last forever at least
- a cookie of character
- an idyllic real estate subdivision
- a soft drink that exudes vitality
- a garage that may be put together in spare time
- a devastating hair dressing with libidinous overtones for men
- a cathartic of sure-fire effectiveness
- tobacco products (except chewing)
- chewing gum, however
- a dentifrice of therapeutic potency
- a baseball game
- scintillating floor wax
- a brand of house paint
- a soap that does things for women that hormones can never do
- a salad dressing of distinction
- an insurance policy that protects against everything
- a sausage
- the performance of several brands of gasoline
- a breakfast food that leaps at you in the morning
- a loan company that is friendly to everybody
- a pill to put you to sleep

Here are two dozen brief case reports of "wonderful" used in *unwonderful* ways.

—E. J. R.

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